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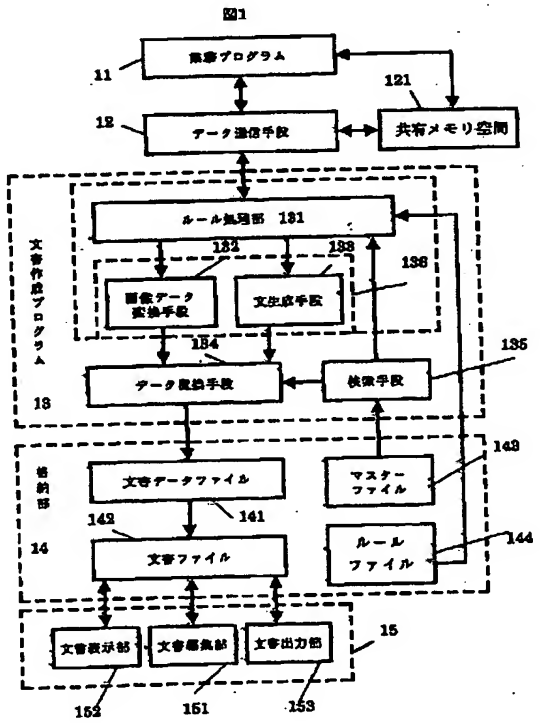
(54)【発明の名称】　定型文書作成装置

(57)【要約】

【目　的】　文書作成プログラムに文生成に関するルールや画像データのフォーマット変換を行うルールを適用可能にすることにより、業務プログラムから文書作成プログラムに起動を行うだけで、オペレータの操作なしに定型文書の自動作成を行う定型文書作成装置を提供する。

【構　成】　記憶手段には、置換すべき文書要素に「キー」を付与したフォーマット情報を含む定型文書を記述した第１ファイルと、予め前記「キー」の種類毎に処理すべき規則を記述した第２ファイルとが記憶されている。そして、検索手段によって上記第１ファイルから「キー」を検索し、前記第２ファイルの規則を参照して「キー」に対応するデータを得るために、業務プログラムに問い合わせを行う処理を行う。この結果に基づいて得られた置換すべき文書要素のデータは、置換手段によって、対応する置換箇所に置換される。



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【特許請求の範囲】

【請求項１】　業務プログラムに対して問い合わせを行う通信手段を備え、その問い合わせ結果に基づいて定型文書を作成する定型文書作成装置であって、

置換すべき文書要素に「キー」を付与したフォーマット情報を含む定型文書を記述した第１ファイルと、予め前記「キー」の種類毎に処理すべき規則を記述した第２ファイルとを記憶する記憶手段と、

前記記憶手段内の第１ファイルから「キー」を検索する検索手段と、

前記記憶手段内の第２ファイルの規則を参照し、前記検索手段の検索結果の「キー」に対応する規則に基づいて前記通信手段を介して、「キー」に対応する情報を業務プログラムに問い合わせるための処理を行う処理手段と、

当該処理手段の問い合わせ結果に基づいて得られたデータから、置換すべき文書要素のデータを作成するデータ作成手段と、

当該データ作成手段で作成された文書要素のデータを「キー」に対応する置換箇所に置換する置換手段と、

を具備することを特徴とする定型文書作成装置。

【発明の詳細な説明】

【０００１】

【産業上の利用分野】本発明は、ＵＮＩＸ等のマルチプロセスが稼働可能なＯＳ上で動作する文書作成装置に係わり、定型化された文書を作成するのに好適な定型文書作成装置に関する。なお、本明細書において、「文書」とは、単に文字のみからなる文だけを意味するのではなく、画像、グラフ、表等を文書内に挿入して作成される文書を含む。

【０００２】

【従来の技術】従来、この種の文書作成装置では、テキスト、図、グラフ等のオブジェクトを持つ文書を作成する際に、オペレータが文書内の特定の箇所にデータを入力したり、他の業務プログラムを起動させることにより、そのプログラムによって処理した値を基にして定型文書を作成していた。このような文書作成装置としては、たとえば特開平１－２１１０６７号公報に記載されているものがある。また、別の文書作成装置では、定型文書の中に部分的に含まれ、その定型文書毎に記載内容が変わる可変領域を設け、この可変領域に対して、対応する標準ユニットを埋め込むことによって定型文書を自動的に完成していた。このような文書作成装置としては、たとえば、特開平１－２３１１６２号公報に記載されているものがある。

【０００３】

【発明が解決しようとする課題】上記特開平１－２１１０６７号公報に記載された文書作成装置では、オペレータが不在時に、バッチ処理等で大量の定型文書を作成することに関しては、全く配慮されていなかった。そのため、上記従来技術で文書を作成する際には、常にオペレータが文書作成装置の側にいなければならず、決められたフォーマットの文書の呼び出しや、データの手入力、他の業務プログラムの起動といった操作が必要であった。また、特開平１－２３１１６２号公報に記載された文書作成装置では、文書データ、画像データ、数値データ等のそれぞれからなる標準ユニットを予め全て用意しておかなければならず、他の業務プログラムで予め作成されている文書データ、画像データ、あるいは数値データ等を利用して定型文書を作成することができなかった。

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【０００４】本発明は、以上のような課題を解決し、業務プログラムから文書作成プログラムを起動するだけで、オペレータの操作なしに定型文書の自動作成を行う定型文書作成装置を提供することを目的とする。

【０００５】

【課題を解決するための手段】前記目的を達成するために、本発明の文書作成装置は、業務プログラム（図１の１１）に対して問い合わせを行う通信手段（図１の１２）を備え、その問い合わせ結果に基づいて定型文書を作成するものであって、置換すべき文書要素に「キー」を付与したフォーマット情報を含む定型文書を記述した第１ファイル（図１の１４３）と、予め前記「キー」の種類毎に処理すべき規則を記述した第２ファイル（図１の１４４）とを記憶する記憶手段（図１の１４）と、当該記憶手段（１４）に記憶されている第１ファイル（１４３）から「キー」を検索する検索手段（図１の１３５）と、前記記憶手段（１４）に記憶されている第２ファイル（１４４）の規則を参照し、前記検索手段（１３５）の検索結果の「キー」に対応する規則に基づいて前記通信手段（１２）を介して、「キー」に対応する情報を業務プログラム（１１）に問い合わせるための処理を行う処理手段（図１の１３１）と、当該処理手段（１３１）の問い合わせ結果に基づいて得られたデータから、置換すべき文書要素のデータを作成するデータ作成手段（図１の１３２、１３３）と、当該データ作成手段（１３２、１３３）で作成された文書要素のデータを「キー」に対応する置換箇所に置換する置換手段（図１の１３４）とから構成される。

【０００６】

【作　　用】記憶手段には、定型文書の中に置換すべき文書要素に「キー」を付与したフォーマット情報を含む定型文書を記述した第１ファイル、たとえばマスターファイル、および前記「キー」の種類毎に処理すべき規則を記述した第２ファイルがそれぞれ記憶されている。検索手段は、上記記憶手段に記憶されている第１ファイルに埋め込まれている「キー」を検索する。処理手段は、前記記憶手段に記憶されている第２ファイル、たとえばルールファイルの規則を参照して、前記検索手段の検索結果である「キー」に対応する規則に基づいて、前記通

信手段を介して、業務プログラムに問い合わせる。業務プログラムでは、前記「キー」に対応する情報を算出して処理手段に前記データ通信手段を介して返送する。データ作成手段は、前記処理手段の問い合わせ結果として業務プログラムから得られた置換すべき文書要素のデータを作成する。そして、データ置換手段は、前記データ作成手段の作成したデータにより、「キー」に対応する文書要素の個所に所望のデータを置換する。業務プログラムから得られる文書要素データは、たとえば、文字列データ、数値データ、画像データ等が含まれる。以上のようにして、所望の定型文書を作成するための第１ファイルおよび第２ファイルを予め作成しておけば、他の業務プログラムで算出されるデータをオペレータが一々取り出して文書要素内に挿入するための指令を与える等の操作を行うことなく、自動的に定型文書が作成される。

【０００７】

【実　施　例】図１は本発明における定型文書作成装置の一実施例を説明するためのブロック構成図である。図１において、定型文書作成装置は、文字列データ、数値データ、あるいは画像データ等の文書要素データを作成する業務プログラム１１と、当該業務プログラム１１で作成した文書要素データを文書作成プログラムからの要求により、業務プログラム１１から取り込むためのデータ通信手段１２と、当該業務プログラム１１によって作成された文書要素データを基にして定型文書を作成する文書作成プログラム１３と、定型文書作成装置に必要な各種ファイルを格納する格納部１４と、文書を作成／編集すると共に、当該文書を出力する入出力部１５とから構成される。上記業務プログラム１１と文書作成プログラム１３との間でデータの遣り取りを行うためのデータ通信手段１２は、たとえば共有メモリ空間１２１を介して行われる。上記文書作成プログラム１３は、後述のルールファイル１４４のルールに従って文書を作成するために処理を行うルール処理部１３１と、定型文書の中の置換部分を作成した文書データや画像データに置き換えるデータ置換手段１３４と、後述のマスターファイルの中の置換部分を検索する検索手段１３５と、画像あるいは文書を作成するデータ作成手段１３６とから構成される。また、上記データ作成手段１３６は、上記データ通信手段１２によって得られた画像データを文書データファイルのフォーマットに変換する画像データ変換手段１３２と、上記データ通信手段１２によって得られた文字列データ、数値データから文書データを生成するための文生成手段１３３とから構成される。格納部１４は、文書作成プログラム１３によって作成された文書を中間フォーマットの形で格納される文書データファイル１４１と、当該文書データファイル１４１のデータを通常の文書編集可能な形に変換して格納する文書ファイル１４２と、文書中に定型文を変換するための「キー」を埋め込んだ文字・段落・ページ等の各フォーマット情報や文書内の図形・イメージの各属性からなるマスターファイル１４３と、文書作成のためにルール処理部１３１が処理するためのルールが格納されているルールファイル１４４とから構成される。入出力部１５は、図示されていないキーボードあるいはマウス等からなり、各種データや指示情報等の情報を入力する入力部と、入力部等からの入力情報に基づいて文書等を作成／編集する文書編集部１５１と、文書編集部１５１によって作成／編集された文書等を表示するための文書表示部１５２と、作成された文書等をプリンタ等によって出力するための文書出力部１５３とから構成される。

【０００８】図２は本実施例における定型文書作成装置によって作成された定型文書の一例を説明するための図である。図２に示す文書「５．個別ライフイベント資金配分についての基本的な考え方」には、生活設計を立てるための資金配分の一例がグラフと共に示されている。上記のような定型文書を作り、これを顧客リストに掲載されている者に発送したい場合には、顧客の一人一人によって氏名、項目、金額や説明文等が異なる。そして、業務プログラム１１のデータベースに格納されている各顧客の氏名その他の資料等を一々オペレータが呼び出して図２の文書に挿入することは大変な作業である。たとえば、図２に示す定型文書は、業務プログラム１１のデータベースに格納されている「富士太郎」に発送するための文書であり、この文書を作成するためには、オペレータによって「富士太郎」という氏名と、データベースから算出される富士太郎に関する項目、金額や説明文等を記入するための操作が行われていた。そこで、本実施例の定型文書作成装置は、上記氏名、項目、金額、説明文等をオペレータが一々挿入する作業を無くすためのものである。すなわち、本実施例の定型文書作成装置は、図３に示すマスターファイル１４３、および図５に示すルールファイル１４４を有し、このルールファイル１４４のルールに従ってマスターファイル１４３の値をそれぞれ所望な値に置換することで、図２に示すような定型文書を作成する。

【０００９】図３は図２に示す文書のマスターファイルの一例を示す図である。図３に示すマスターファイル１４３は、予め置換する部分に「キー」を埋め込むと同時に所定の文書が作成され、格納部１４に格納されている。たとえば、このマスターファイル１４３は、置換するための「キー」を埋め込んだ文字・段落・ページの各フォーマット情報や文書内の図形・イメージの各属性で構成される。同図において、マスターファイルの最初の４文字で、その行のタイプを表している。たとえば、「Ｐａｒａ」は、段落属性を表すデータで、その属性をその後の括弧内に記載されている数字によって表す。「Ｔａｂｓ」は、文字間隔を意味し、その属性をその後の括弧内に記載されている数字によって表す。「Ｔｅｘｔ｛Ｆｏｎｔ〔」は、文字情報を意味し、その文字の大

きさや字体等の属性をその後の括弧内に記載されている数字によって表す。「Ｓｔｒｉｎｇ」は、定型文書となる文字列を表す。「Ｂｒｅｋ｛Ｔｙｐｅ〔０〕｝」は、改頁情報を意味している。「Ｐａｇｅ」は、ページフォーマット情報を表わすデータである。「＄＄」は、本発明の「キー」の始まりを意味し、その後のアルファベットは、「キー」である。たとえば、「ＳＴＲ１」は文字列「富士太郎」に、「ＳＴＲ２」は、文字列「公的年金等の収入がありますので、・・・・・補填することができます。」に、「ＮＵＭ１」は、数字「３０」に、「ＩＮＣＯＭＥ＿ＧＲＡＰＨ」は、図２におけるグラフにそれぞれ対応する。

【００１０】図４は共有メモリ空間が業務プログラムと文書作成プログラムとのワーキングメモリとして働くことを説明するための図である。図４において、文書作成プログラム１３は、業務プログラム１１の子プロセスとして起動され、初期設定として業務プログラム１１が起動可能な状態におかれる。業務プログラム１１は、文書作成プログラム１３を起動する前に、業務プログラム１１を実行するための主メモリ上にデータ通信手段１２によって、たとえば共有メモリ空間１２１を確保し、そのアドレスを内部で保持する。その後、業務プログラム１１は、文書作成プログラム１３を起動し、共有メモリ空間１２１のアドレスをデータ通信手段１２を介して、子プロセスである文書作成プログラム１３に伝える。これにより、どちらのプロセスからでも共有メモリ空間１２１をアクセスすることができる。業務プログラム１１と文書作成プログラム１３とのデータ通信は、業務プログラム１１によって算出された文字列データ、数値データ、画像データ等が、データ通信手段１２を介して、文書作成プログラム１３に送られる。これらのデータが文字列データや数値データの場合は、文生成手段１３３により、そのまま又は加工され、データ置換手段１３４に送出される。また、画像データの場合は、画像データ変換手段１３２により、データ置換手段１３４で処理できるフォーマットに変換され、データ置換手段１３４に送出される。そして、データ置換手段１３４では、検索手段１３５で検索された変換「キー」の部分を業務プログラム１１からデータ作成手段１３６を介して受け取った上記データで置き換えて、これを文書データファイル１４１にコピーする。

【００１１】図５は文書作成プログラムにおいて、定型文書の置換部分をどのように置き換えるかについて説明するためのルールファイルを示す。ここでは、検索手段１３５で抽出した「キー」、たとえば「ＳＴＲ１」、「ＳＴＲ２」、「ＮＵＭ１」等を基に、それに対応するルールの実行部を実行する。ルールの実行部では、通常のＣ言語の関数が記述できるので、業務プログラム１１から文字列データ、数値データを取り出す関数や画像データをコンバートする関数が用意されている。このプロセス間のデータの受け渡しは、たとえば、図４に示す共有メモリ空間１２１とシグナルを利用して行っている。

【００１２】図５において、たとえばルールファイル１４４の条件部で「キー」に対応する条件部がマッチしたときは、その実行部を実行する。先ず、業務プログラム１１から受信した文字列データを直接置換する例を説明する。ルール処理部１３１では、「キー」として「ＳＴＲ１」が入って来ると、ルールファイル１４４の条件部を検索し、対応する実行部を特定し、実行する。すなわち、「ＧｅｔＭｅｓｓａｇｅ＿Ｓｔｒ」という関数を実行し、「ＵＳＥＲ＿ＮＡＭＥ」を共有メモリ空間１２１に書き込むと共に、書き込んだことをデータ通信手段１２を介して通知することにより、データ通信手段１２を介して業務プログラム１１からユーザ名、たとえば「富士太郎」を共有メモリ空間１２１を介して受信し、「ｓｖａｌ」という変数に受信した「富士太郎」を代入する。この代入された値は、文生成手段１３３により、リターン値としてデータ置換手段１３４へ送られ、文書データファイル１４１にコピーされる。

【００１３】次に、業務プログラム１１から受信した文字列データを加工する例を説明する。ルール処理部１３１では、「キー」として「ＳＴＲ２」が入ってくると、ルールファイル１４４の条件部を検索し、対応する実行部を特定し、実行する。たとえば、図５のルールファイル１４４では、「ＧｅｔＭｅｓｓａｇｅ＿Ｎｕｍ」という関数を実行し、「ＳＴＲ１」の場合と同様に、「ＳＩＬＶＥＲＩＮＣＯＭＥ」を共有メモリ空間１２１に書き込む等の処理をして業務プログラム１１へ問い合わせを行なうことにより、データ通信手段１２を介して、業務プログラム１１から老後の収入があるか否かの情報、たとえば「１」あるいは「０」を得て「ｎｖａｌ」という変数に代入する。次に、「ＧｅｔＭｅｓｓａｇｅ＿Ｓｔｒ」という関数を実行し、同様に、「ＳＩＬＶＥＲ＿ＭＡＩＮ＿ＩＮＣＯＭＥ」を共有メモリ空間１２１に書き込む処理等により業務プログラム１１に問い合わせを行なう。この結果、データ通信手段１２等を介して老後の主な収入の項目、たとえば「公的年金」を得て「ｓｖａｌ」という変数に代入する。「ｎｖａｌ」の値が「１」の時は、「ＭａｋｅＳｅｎｔｅｎｃｅ」という関数を実行し、「ｓｖａｌ」という変数と他の引数を組み合わせて文字列を生成し、それを戻り値として返す。すなわち、文生成手段１３３により、「ｓｖａｌ」の値「公的年金」に「等の収入がありますので、老後の・・・・補填することがあります。」が組み合わせられてデータ置換手段１３４へ送出される。それ以外の時、すなわち、「ｎｖａｌ」が「０」であれば、「第３章の確認項目で収入が有りませんでしたので、ないものとして計算してあります」がそのままデータ置換手段１３４へ送出される。その後、データ置換手段１３４により文生成手段１３３で生成された文字列が中間形式の文書データファイ

ル１４１へコピーされる。

【００１４】次に、数値データの例を説明する。ルール処理部１３１では、「キー」として「NUM1」が入ってくると、ルールファイル１４４の条件部を検索し、対応する実行部を特定し、実行する。たとえば、「ＧｅｔＭｅｓｓａｇｅ＿Ｎｕｍ」という関数を実行し、同様にしてデータ通信手段１２を用いて業務プログラム１１から「ＳＩＬＶＥＲ＿ＣＯＳＴ＿Ｍ」の値（図２の例では老後の生活費の月額）を得て「ｎｖａｌ」という変数に代入する。最後に、画像データの例を説明する。ルール処理部１３１では、「キー」として「ＩＮＣＯＭＥ＿ＧＲＡＰＨ」が入ってくると、同様にして、「ＩＮＣＯＭＥＢＭ」を共有メモリ空間１２１を介して業務プログラム１１に送信することによりデータ通信手段１２を介して業務プログラム１１で作成した生涯収支に関するビットマップデータを得る。たとえば、対応する画像データが入ったファイル名を共有メモリ空間１２１を介して受信し、そのファイル名を戻り値として返す。そして、そのファイル名の内容を画像データ変換手段１３２が中間形式に変換し、データ置換手段１３４を介して文書データファイル１４１へコピーする。以上の操作を繰り返して、中間形式の文書データファイル１４１を作成する。その後で、中間形式の文書データファイル１４１から通常の文書編集可能な形に変換して文書ファイル１４２を作成する。

【００１５】次に、定型文書作成装置の文書作成に関する動作を図６ないし図９を参照して説明する。図６は本実施例における検索手段のフローチャートである。ステップ６１では、検索手段１３５が図３に示すマスターファイル１４３のデータを一行ずつ読み込む。ステップ６２では、上記検索手段１３５がマスターファイル１４３の全ての行のデータを読み込んだか否かを調べる。マスターファイル１４３の全ての行を読み込んでいない場合には、ステップ６３へ進み、マスターファイル１４３の全ての行を読み込んだ場合には、読み込みを終了する。ステップ６３では、検索手段１３５により読み込んだ行のデータ毎に、その中に変換のための「キー」、たとえば図３に示す「ＳＴＲ１」等が含まれているか否かを調べる。変換のための「キー」が含まれていれば、ステップ６４に進み、変換のための「キー」が含まれていなければステップ６５に進む。ステップ６４では、ルール処理部１３１が変換のための「キー」を所定の文書になるように置き換えるためのルールファイル１４４を読み込み、ルールを起動させる。すなわち、文書に埋め込まれた「キー」を検索手段１３５で検索し、これをルール処理部１３１へ送り、後述する図７の処理が行われる。その後、ステップ６１に戻り、マスターファイル１４３の次の行を読み込み、これをファイルの最後の行が読み終わる（ＥＯＦ＝Ｅｎｄ　Ｏｆ　Ｆｉｌｅ）まで続ける。ステップ６５では、ステップ６３の検査で変換のための「キー」がない場合、データ置換手段１３４を介してその行の文字列等をそのまま文書データファイル１４１にコピーする。

【００１６】次に、図６に示すステップ６４について図７を参照して詳細に説明する。すなわち、ステップ６４において、変換のための「キー」が検索され、変換のためのルールが起動されると、ルール処理部１３１は、図５に示すルールファイル１４４を読み込み、その実行部の記述に従い、データ通信手段１２を介して、業務プログラム１１とデータ通信を行う。図７は文書作成プログラムと業務プログラムとの間におけるデータ通信手段を介した処理の流れの一例を示すフローチャートで、図６に示すステップ６４の詳細を示すものである。図８は文書作成プログラムにおける処理の流れの一例を示す。図９は業務プログラムにおける処理の流れの一例を示す。そして、図８および図９に示すフローチャートは、図７に示すステップ７２におけるルールを実行する際に、業務プログラム１１と文書作成プログラム１３との間で行われる処理の流れである。先ず、ステップ７１では、ルール処理部１３１がルールファイル１４４で「キー」に対応するルールを検索する。ステップ７２では、ルール処理部１３１が前記検索されたルールに従って、「キー」に対応したルール実行部を実行する。

【００１７】すなわち、ルール実行部の実行を示す図８および図９のフローチャートについて説明する。ステップ８１では、ルール処理部１３１が、検索手段１３５によって検索された「キー」情報をデータ通信手段１２を介して、共有メモリ空間１２１にコピーするような処理を行う。たとえば、「キー」情報が「ＳＴＲ１」の場合には、「ＵＳＥＲ＿ＮＡＭＥ」「ＳＴＲ２」の場合には、「ＳＩＬＶＥＲ＿ＩＮＣＯＭＥ」等を共有メモリ空間１２１にコピーする。ステップ８２では、ルール処理部１３１がデータ通信手段１２を介して、業務プログラム１１へ共有メモリ空間１２１に上記文字列をコピーしたことを知らせるシグナルを送信する。

【００１８】上記シグナルを受信した業務プログラム１１側の処理について図９のフローチャートにしたがって説明する。ステップ９１では、文書作成プログラム１３からのシグナルを受信したか否かを調べる。この調べは、文書作成プログラム１３からシグナルが来るまで続けられる。前記シグナルを受信するとステップ９２へ進む。ステップ９２では、前記シグナルが業務プログラム１１の終了を示すシグナルであるか否かを調べる。業務プログラム１１の業務が終了すると、終了のシグナルを得て処理を終了し、終了のシグナルが出ない場合には、次のステップに進む。ステップ９３では、文書作成プログラム１３から送られて、共有メモリ空間１２１に一時的に格納されている「キー」情報をコピーする。たとえば、「ＵＳＥＲ＿ＮＡＭＥ」あるいは「ＳＩＬＶＥＲ＿ＩＮＣＯＭＥ」等が業務プログラム１１によりコピーさ

れる。ステップ９４では、業務プログラム１１によって、前記「キー」情報に対応する値を算出する。たとえば、処理済みで保持しているデータのうち文字列に対応する値を読み出したり、または文字列から所定の処理を行い、その処理結果を算出結果とする。ステップ９５では、前記算出されて求められた情報を共有メモリ空間１２１へコピーする。この情報は、業務プログラム１１側で作成されて格納されていた「キー」情報に対応するもので、たとえば「富士太郎」、「１」、「０」等の文字列、数値、あるいはグラフ等の画像データが入ったファイル名等がある。ステップ９６では、「キー」情報に対応する情報が共有メモリ空間１２１へ格納されたことを示すシグナルを文書作成プログラム１３へ送信する。

【００１９】上記シグナルを受信した文書作成プログラム１３側の処理について再び図８のフローチャートに戻って説明する。ステップ８３では、ルール処理部１３１が業務プログラム１１から前記ステップ９６のシグナルを受信したか否かを調べる。この調べは、返信シグナルが来るまで続けられる。ステップ８４では、前記ステップ９５において業務プログラム１１が共有メモリ空間１２１へ格納した際の情報をコピーする。そして、この情報、たとえば「富士太郎」は、文書作成プログラム１３で文書の中に置換される。

【００２０】以上のように、図７に示すステップ７２のルール実行部を実行した結果、ステップ７３に戻る。すなわち、ステップ７３では、ルール処理手段１３１が、「キー」の属性は、画像データであるか否かを調べる。「キー」の属性が画像データであれば、ステップ７４に進み、画像データでなければ、ステップ７６に進む。ステップ７４では、画像データ変換手段１３２がルールの戻り値のイメージデータを文書データファイル１４１のフォーマットに変換する。ステップ７５では、画像データ変換手段１３２によって変換したファイルの内容をデータ置換手段１３４が文書データファイル１４１にコピーし、その後、処理は終了する。ステップ７６では、「キー」の属性が画像データでない場合、ルールに従って変換した値をデータ置換手段１３４が文書データファイル１４１にコピーする。そして、文書データファイル１４１内のデータは、通常の文書編集可能な形に変換されて文書ファイル１４２に格納される。したがって、当該文書ファイル１４２に格納されたデータは、文書出力部１５３のプリンタ等により、オペレータの手を煩わすことなく定型文書が自動的に作成される。

【００２１】以上の実施例には、データ通信手段として共有メモリ空間を介してプロセス間通信を行うものを説明したが、変形例としては、共有メモリ空間を使用せずに、プロトコルを使用して、内部またはＬＡＮ等の通信線を介して外部の業務プログラムと通信を行うデータ通信手段も使用でき、同様の効果が得られるのは明らかである。また、本実施例の定型文書作成装置では、文書ファイル作成後に、その文書をディスプレイ上のウィンドウに表示したり、キーボードやマウスを用いてその文書を編集したり、付属のプリンタに対してプリントアウトすることができる。

【００２２】

【発明の効果】本発明によれば、「キー」情報を備えた第１ファイルの「キー」情報を基に、第２ファイルのルールにしたがって、業務プログラムが前記「キー」情報に対応した情報を算出して文書作成装置（文書作成プログラム）に送るので、オペレータは、業務プログラム等の起動だけで、各種情報を一々挿入しながら定型文書を作成する必要がない。したがって、本発明の定型文書作成装置は、各種の第１ファイルと第２ファイルとを準備しておけば、オペレータが介在することなく、簡単に定型文書を作成することができる。

【図面の簡単な説明】

【図１】　本発明における定型文書作成装置の一実施例を説明するためのブロック構成図である。

【図２】　本実施例における定型文書作成装置によって作成された定型文書の一例を説明するための図である。

【図３】　図２に示す文書のマスターファイルの一例を示す図である。

【図４】　共有メモリ空間が業務プログラムと文書作成プログラムとのワーキングメモリとして働くことを説明するための図である。

【図５】　文書作成プログラムにおいて、定型文書の置換部分をどのように置き換えるかについて説明するためのルールファイルを示す。

【図６】　本実施例における検索手段のフローチャートである。

【図７】　文書作成プログラムと業務プログラムとの間におけるデータ通信手段を介した処理の流れの一例を示すフローチャートで、図６に示すステップ６４の詳細を示すものである。

【図８】　文書作成プログラムにおける処理の流れの一例を示す。

【図９】　業務プログラムにおける処理の流れの一例を示す。

【符号の説明】

１１・・・業務プログラム　　１４・・・格納部
１２・・・データ通信手段　　１５・・・入出力部
１３・・・文書作成プログラム
１２１・・・共有メモリ空間　　１４１・・・文書データファイル
１３１・・・ルール処理部　　１４２・・・文書ファイル
１３２・・・画像データ変換手段　　１４３・・・マスターファイル

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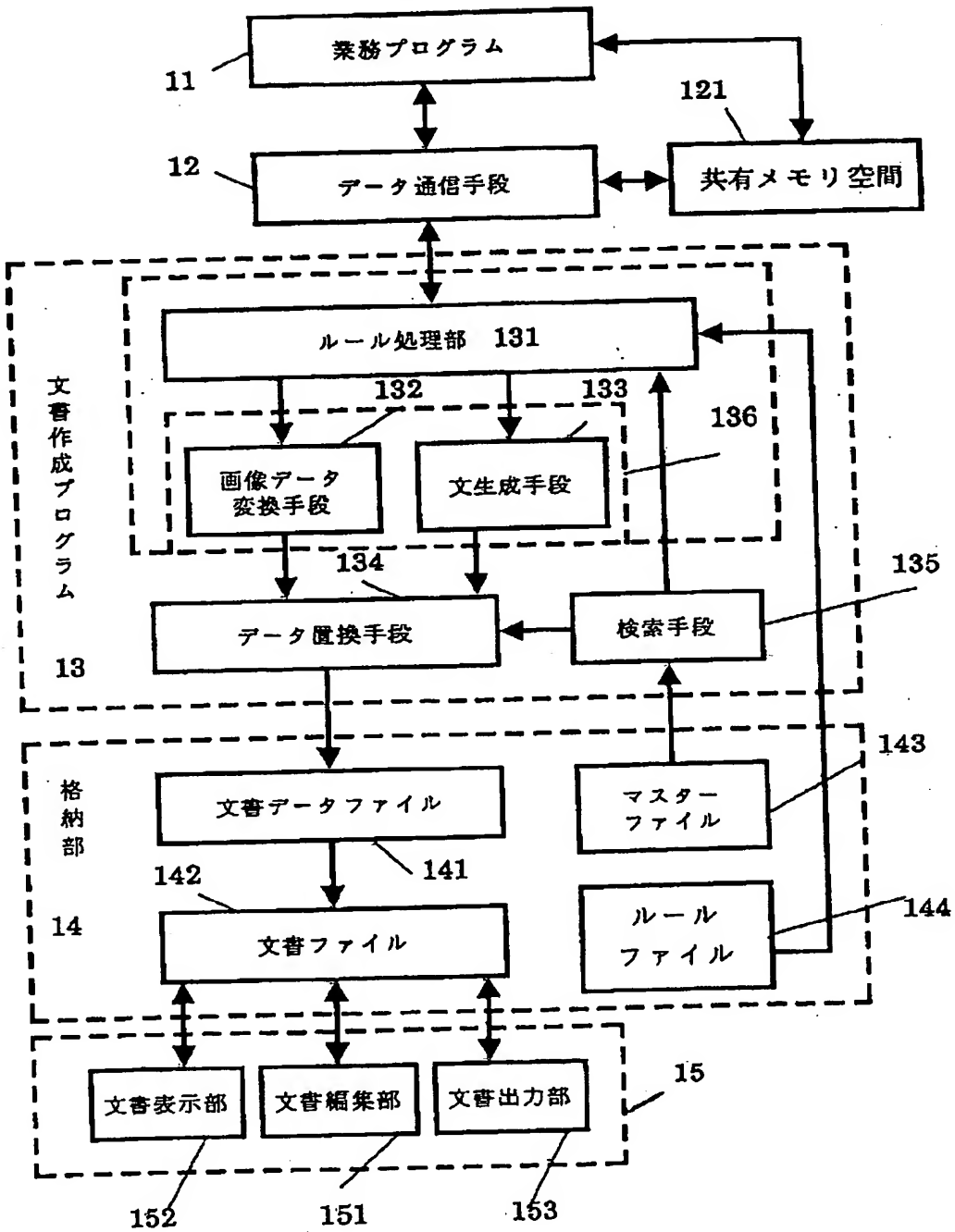
１３３・・・文生成手段　　１４４・・・ルールファイル
１３４・・・データ置換手段　　１５１・・・文書編集部
１３５・・・検索手段　　１５２・・・文書表示部
１３６・・・データ作成手段　　１５３・・・文書出力部

【図１】

図1



【図２】

図2

19910412-123

5.　個別ライフイベント資金配分についての基本的な考え方

5.1.　収入と支出

■支　出

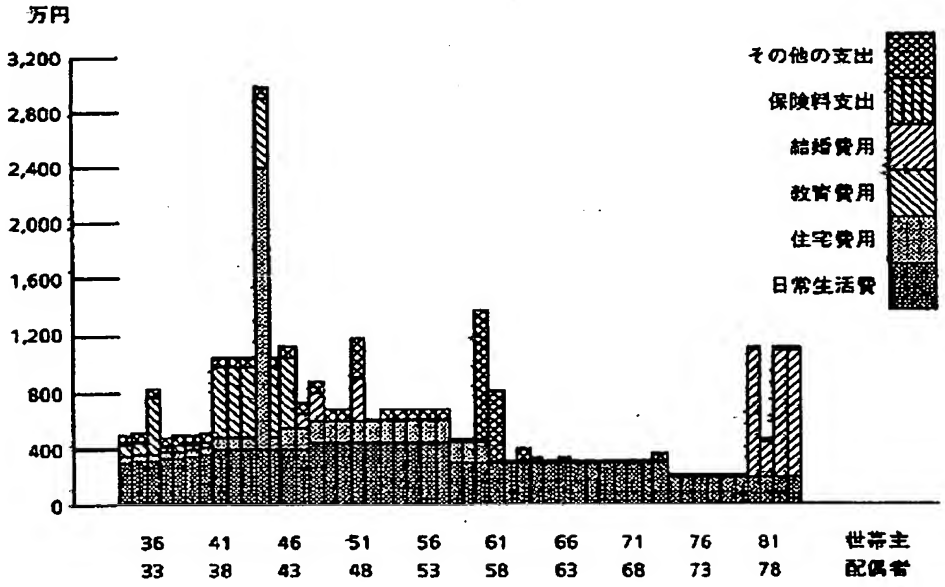
富士太郎様のご希望の老後の生活費は、月額30万円です。この金額全てを賄うためには退職時点で7,109万円の資金が必要となります。

しかし、富士太郎様の老後におきましては、公的年金等の収入がありますので、老後の生活費用の一部を補填することができます。

■収　入

富士太郎様の場合、第3章の確認項目に基づき、公的年金、企業年金、個人年金、受取保険金などの一時収入の合計が5,695万円(月額24.5万円)があると予測されます。

これらの、収入と支出をグラフにすると以下の通りです。



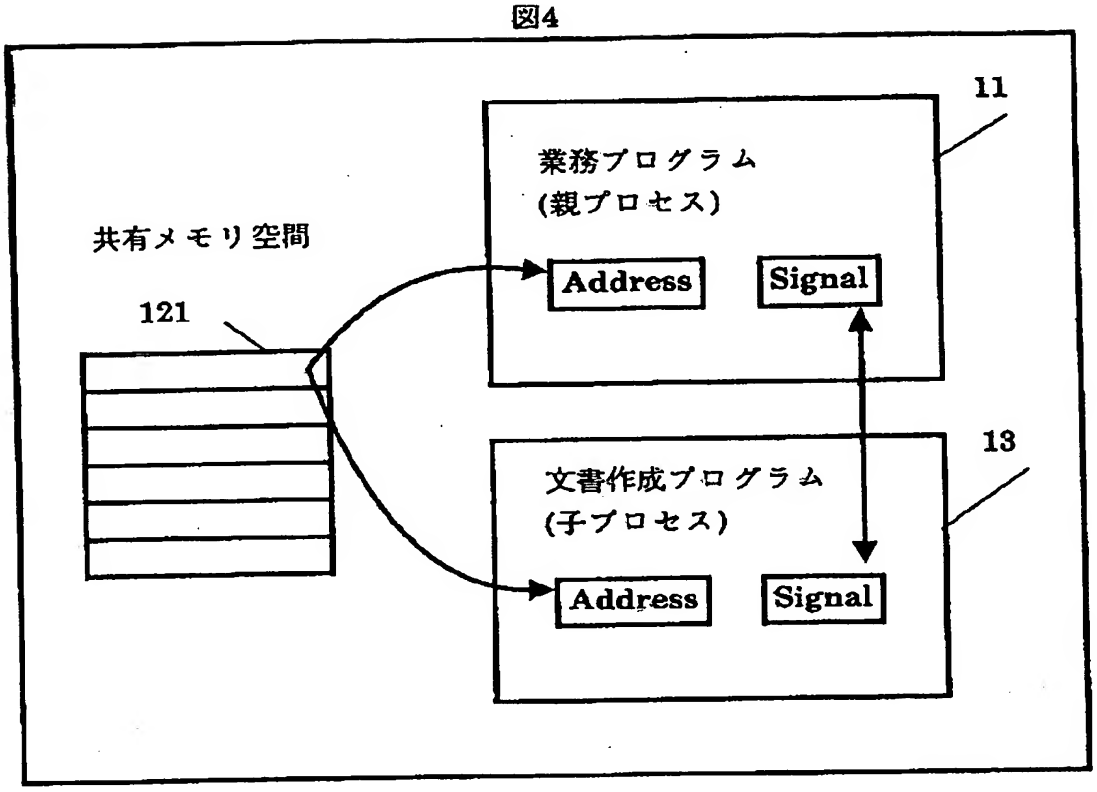
【図３】

図3

```
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font[0,14,0,0,0,0,0,0], String{5.^L個別ライフイベント資金配分についての基本的な考え方}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font[0,12,0,0,0,0,0,0], String{5.1.^L収入と支出}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font[0,12,0,0,0,0,0,0], String{^L■支　出}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font[0,12,0,0,0,0,0,0], String{^L　^L$$STR1様のご希望の老後の生活費は、月額$$NUM1万円です。この金額全
てを賄うためには退職時点で$$NUM2万円の資金が必要となります。
　しかし、$$STR1様の老後におきましては、$$STR2}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font[0,12,0,0,0,0,0,0], String{^L■収　入}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font[0,12,0,0,0,0,0,0], String{^L$$STR1様の場合、第3章の確認項目に基づき、$$STR3などの一時収入の合計が}}
Text{Font[0,12,0,0,0,2,0], String{$$NUM3}}
Text{Font[0,12,0,0,0,0,0,0], String{(月額$$NUM4万円)があると予測されます。}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font[0,12,0,0,0,0,0,0], String{^Lこれらの、収入と支出をグラフにすると以下の通りです。}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font[0,12,0,0,0,0,0,0], String{$$INCOME_GRAPH}}
Brek{Type[0]}
```

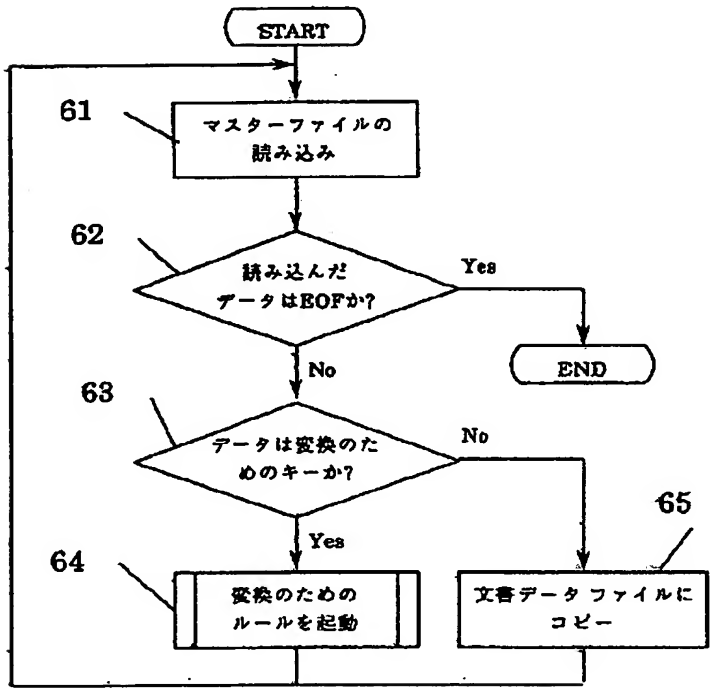
【図４】

図4



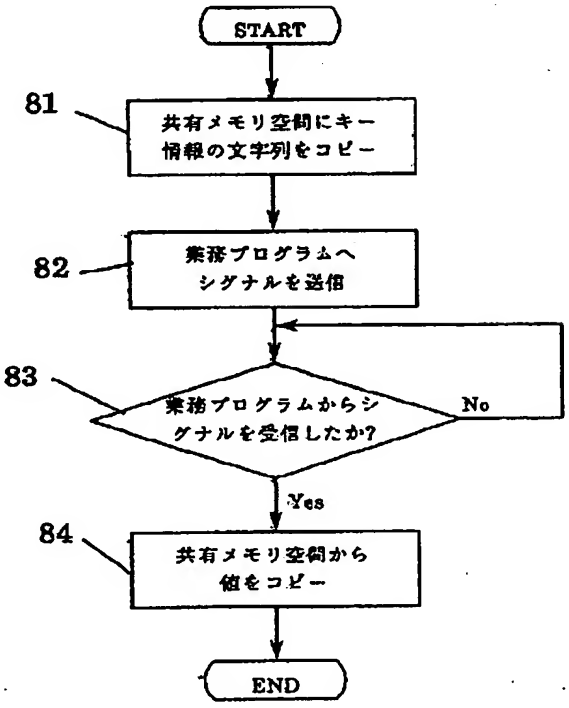
【図６】

図6



【図８】

図8



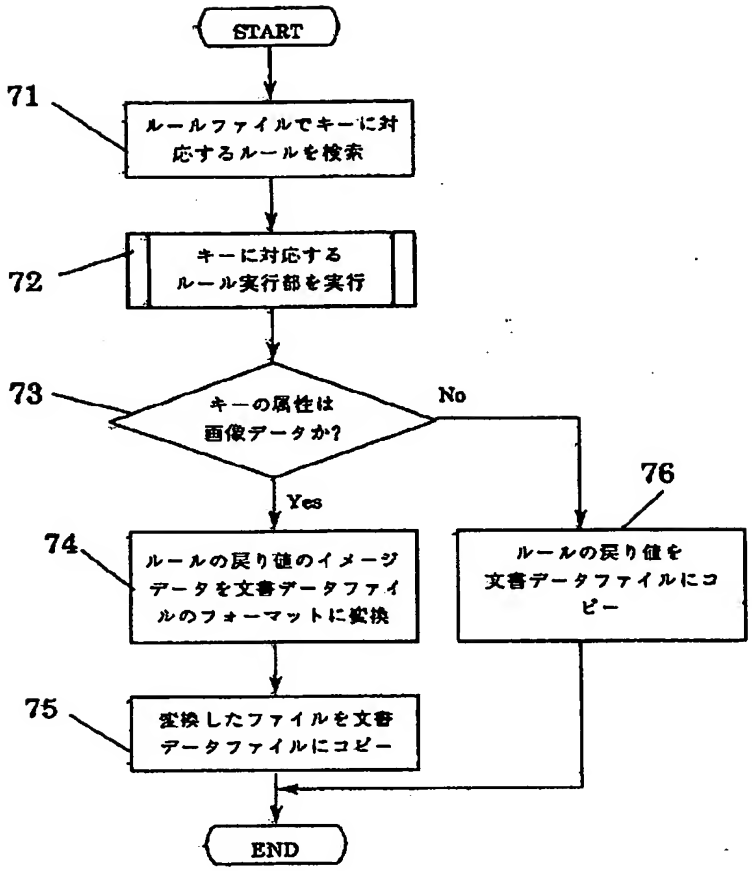
【図５】

図5

```
STR1::
        GetMessage__Str(USER__NAME, sval);
        return(sval);

STR2::
        GetMessage__Num(SILVER__INCOME, nval);
        GetMessage__Str(SILVER__MAIN__INCOME, sval);
        if (nval == 1)
            return(MakeSentence(sval, "等の収入がありますので、老後の生活費用
の一部を補填することができます。"));
        else
            return(第3章の確認項目で収入のご記入がありませんでしたので、ないものと
して計算してあります。);;

STR3::
        GetMessage__Str(SILVER__MAIN__INCOME, sval);
        GetMessage__List(SILVER__OTHER__INCOME, lval);
        if (lval == 0)
            return(sval);
        else
            return(MakeSentence(sval, lval));

NUM1::
        GetMessage__Num(SILVER__COST__M, nval);
        return(nval);

NUM2::
        GetMessage__Num(SILVER__FUND, nval);
        return(nval);

NUM3::
        GetMessage__Num(SILVER__ALL__INCOME, nval);
        return(nval);

NUM4::
        GetMessage__Num(SILVER__INCOME__M, nval);
        return(nval);

INCOME__GRAPH::
        Convert__bm(INCOME__BM, income__graph.idf);
        return("income__graph.idf");
```

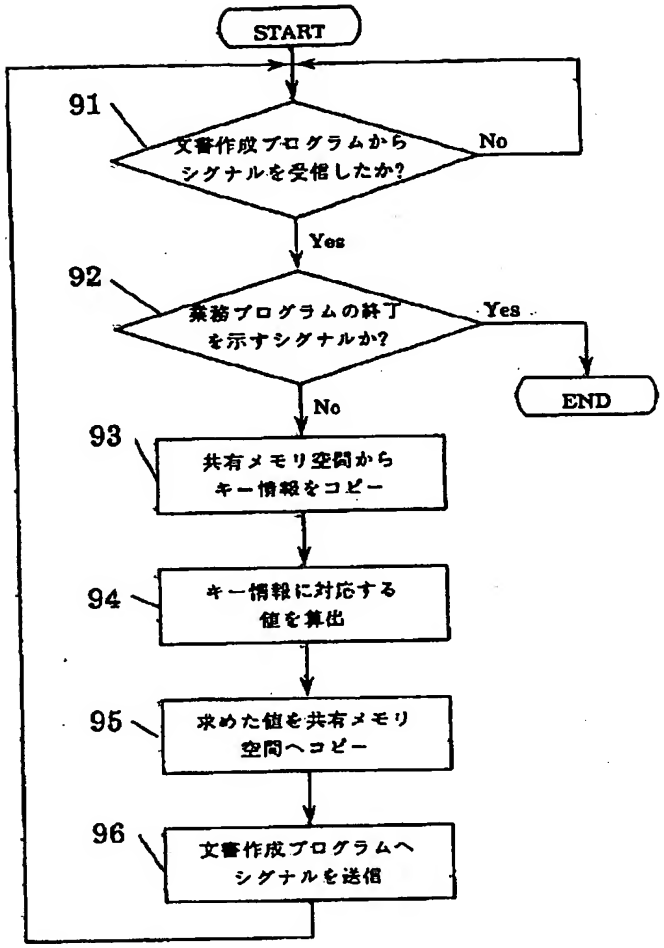
【図7】

図7


START
71
ルールファイルでキーに対応するルールを検索
72
キーに対応するルール実行部を実行
73
キーの属性は画像データか?
No
Yes
76
ルールの戻り値を文書データファイルにコピー
74
ルールの戻り値のイメージデータを文書データファイルのフォーマットに変換
75
変換したファイルを文書データファイルにコピー
END

【図9】

図9


START
91
文書作成プログラムから
シグナルを受信したか?
No
Yes
92
業務プログラムの終了
を示すシグナルか?
Yes
END
No
93
共有メモリ空間から
キー情報をコピー
94
キー情報に対応する
値を算出
95
求めた値を共有メモリ
空間へコピー
96
文書作成プログラムへ
シグナルを送信

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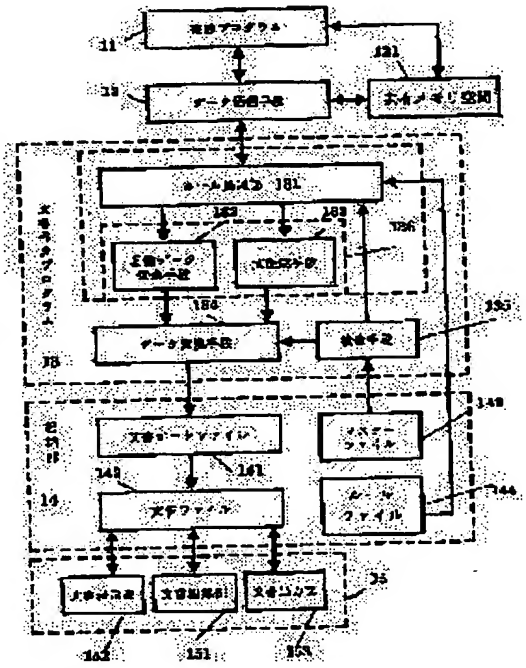
(71)Applicant : FUJI XEROX CO LTD
(72)Inventor : HONMA MITSURU

(54) ROUTINE DOCUMENT PREPARING DEVICE

(57)Abstract:
PURPOSE: To automatically prepare a routine document without an operator's operation by only actuating to a document preparing program from a work program by constituting the device so that a rule related to generation of a sentence and a rule for executing the format conversion of image data can be applied to the document preparing program.
CONSTITUTION: In a storage means 14, a first file 143 in which a routine document containing format information given a 'key' to a document element to be substituted is described, and a second file 144 in which a rule to be processed at every kind of the 'key' in advance is described are stored. In such a state, the 'key' is retrieved from a first file 143 by a retrieving means 135, and in order to obtain data corresponding to the 'key' by referring to the rule of a second file 144, a processing for inquiry to a work program 11 is executed. Data of a document element to be substituted, obtained, based on its result is substituted to the corresponding substitution part by a substituting means 134.



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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] It is fixed form document preparation equipment which is equipped with the means of communications which asks to a user program, and draws up a fixed form document based on the inquiry result. The 1st file which described the fixed form document including the format information which gave the "key" to the document element which should be permuted, A storage means to memorize the 2nd file which described the regulation which should be beforehand processed for every class of above "a key", A retrieval means to search a "key" from the 1st file within said storage means, With reference to the regulation of the 2nd file within said storage means, said means of communications is minded based on the regulation corresponding to the "key" of the retrieval result of said retrieval means. A processing means to perform processing for asking a user program the information corresponding to a "key", A data origination means to create the data of the document element which should be permuted from the data obtained based on the inquiry result of the processing means concerned, Fixed form document preparation equipment characterized by providing a permutation means to permute the data of the document element created with the data origination means concerned by the permutation part corresponding to a "key."

[Translation done.]

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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to suitable fixed form document preparation equipment to draw up the standardized document with respect to the document preparation equipment which operates on OS to which multi-processes, such as UNIX, can work. In addition, in this specification, a "document" does not mean only the sentence which consists only of an alphabetic character, but the document which inserts an image, a graph, a table, etc. into a document and is drawn up is included.
[0002]
[Description of the Prior Art] Conventionally, with this kind of document preparation equipment, when drawing up a document with objects, such as a text, drawing, and a graph, and an operator inputted data into the specific part in a document or started other user programs, the fixed form document was drawn up based on the value processed by that program. As such document preparation equipment, there are some which are indicated by JP,1-211067,A, for example. Moreover, with another document preparation equipment, it was partially contained in the fixed form document, the variable region which changes written contents for every fixed form document of that was prepared, and the fixed form document was automatically completed by embedding a corresponding standard unit to this variable region. As such document preparation equipment, there are some which are indicated by JP,1-231162,A, for example.
[0003]
[Problem(s) to be Solved by the Invention] With the document preparation equipment indicated by above-mentioned JP,1-211067,A, it was not considered at all about an operator drawing up a lot of fixed form documents by batch processing etc. at the time of an absence. Therefore, in case a document was drawn up with the above-mentioned conventional technique, actuation, such as a call of the document of a format with which the operator had to be in the document preparation equipment side, and was always decided, and starting of the manual entry of data and other user programs, was required. Moreover, with the document preparation equipment indicated by JP,1-231162,A, the standard unit which consists of each, such as document data, image data, and numeric data, had to be prepared altogether beforehand, and a fixed form document was not able to be drawn up using the document data currently beforehand created by other user programs, image data, or numeric data.
[0004] This invention solves the above technical problems, only starts a document preparation program from a user program, and aims at offering the fixed form document preparation equipment which performs automatic creation of a fixed form document without actuation of an operator.
[0005]
[Means for Solving the Problem] In order to attain said purpose, the document preparation equipment of this invention It has the means of communications (12 of drawing 1) which asks to a user program (11 of drawing 1). The 1st file which described the fixed form document including the format information which gave the "key" to the document element which should draw up a fixed form document based on the inquiry result, and should be permuted (143 of drawing 1), A storage means to memorize the 2nd file (144 of drawing 1) which described the regulation which should be beforehand processed for every class of above "a key" (14 of drawing 1), A retrieval means to search a "key" from the 1st file (143) memorized by the storage means (14) concerned (135 of drawing 1), With reference to the regulation of the 2nd file (144) memorized by said storage means

(14), said means of communications (12) is minded based on the regulation corresponding to the "key" of the retrieval result of said retrieval means (135). A processing means to perform processing for asking a user program (11) the information corresponding to a "key" (131 of drawing 1), A data origination means to create the data of the document element which should be permuted from the data obtained based on the inquiry result of the processing means (131) concerned (132 of drawing 1 , 133), It consists of permutation means (134 of drawing 1) to permute the data of the document element created with the data origination means (132 133) concerned by the permutation part corresponding to a "key."

[0006]

[work —] for The 1st file which described the fixed form document which includes the format information which gave the "key" to the document element which should be permuted in a fixed form document in a storage means, for example, a master file, and the 2nd file which described the regulation which should be processed for every class of above "a key" are memorized, respectively. A retrieval means searches the "key" currently embedded at the 1st file memorized by the above-mentioned storage means. A processing means is asked to a user program through said means of communications based on the regulation corresponding to the "key" which it is as a result of [of said retrieval means] retrieval with reference to the regulation of the 2nd file memorized by said storage means, for example, the Ruhr file. In a user program, the information corresponding to the above "a key" is computed and a processing means is returned through said data communication means. A data origination means creates the data of the document element which was obtained from the user program as an inquiry result of said processing means and which should be permuted. And a data permutation means permutes desired data by the part of the document element corresponding to a "key" with the data which said data origination means created. As for the document element data obtained from a user program, character-string data, numeric data, image data, etc. are contained. A fixed form document is drawn up automatically, without operating giving a command for an operator taking out the data computed by other user programs one by one, and inserting them into a document element etc., if the 1st file and the 2nd file for drawing up a desired fixed form document as mentioned above are created beforehand.

[0007]

[The example of fruit **] Drawing 1 is a block block diagram for explaining one example of the fixed form document preparation equipment in this invention. The user program 11 to which fixed form document preparation equipment creates document element data, such as character-string data, numeric data, or image data, in drawing 1 R> 1, The document element data created by the user program 11 concerned by the demand from a document preparation program The data communication means 12 for incorporating from a user program 11, and the document preparation program 13 which draws up a fixed form document based on the document element data created by the user program 11 concerned, It consists of the storing section 14 which stores various files required for fixed form document preparation equipment, and the I/O section 15 which outputs the document concerned while drawing up / editing a document. The data communication means 12 for exchanging data between the above-mentioned user program 11 and the document preparation program 13 is performed through the shared memory space 121. The above-mentioned document-preparation program 13 consists of the Ruhr processing section 131 which processes in order to draw up a document according to the Ruhr of the below-mentioned Ruhr file 144, a data permutation means 134 replaced with the document data which created the permutation part in a fixed form document, or image data, a retrieval means 135 search the permutation part in the below-mentioned master file, and a data origination means 136 draw up an image or a document. Moreover, the above-mentioned data origination means 136 consists of an image data-conversion means 132 to change into a format of a document data file the image data obtained by the above-mentioned data communication means 12, and a sentence generation means 133 for generating document data from the character-string data obtained by the above-mentioned data communication means 12, and numeric data. The document data file 141 stored in the form of a middle format of the document with which the storing section 14 was created by the document preparation program 13, The text file 142 which changes and stores the data of the document data file 141 concerned in the form in which the usual document edit is possible, The master file 143 which consists of each attribute of the graphic form and image in each format information, such as an alphabetic character, a paragraph, a page, etc. which embedded

the "key" for changing a fixed form sentence into the document, or a document, It consists of Ruhr files 144 in which the Ruhr for the Ruhr processing section 131 to process for document preparation is stored. The input section which the I/O section 15 consists of a keyboard or a mouse etc. which is not illustrated, and inputs information, such as various data and directions information, It consists of the document editorial department 151 which is based on input from the input section etc., and draws up / edits a document etc., a document display 152 for displaying the document drawn up / edited by the document editorial department 151, and the document output section 153 for outputting the drawn-up document by a printer etc.

[0008] Drawing 2 is drawing for explaining an example of the fixed form document drawn up by the fixed form document preparation equipment in this example. An example of the fund allocation for standing a life design is shown in the document "5. the fundamental view about individual LIFE event fund allocation" shown in drawing 2 with the graph. The above fixed form documents are made, and a name, an item, and the amount of money differ from an explanatory note etc. by every customer to ship this to those who are carried by the customer list. And it is a serious activity for an operator to call the data of name and others of each customer which are stored in the database of a user program 11 etc. one by one, and to insert them in the document of drawing 2 . For example, the fixed form document shown in drawing 2 was a document for shipping to "Taro Fuji" stored in data **-SU of a user program 11, and in order to draw up this document, actuation for filling in an item, the amount of money, an explanatory note, etc. about Taro Fuji computed from data **-SU as the name "Taro Fuji" was performed by the operator. Then, the fixed form document preparation equipment of this example is for abolishing the activity in which an operator inserts the above-mentioned name, an item, the amount of money, an explanatory note, etc. one by one. That is, the fixed form document preparation equipment of this example has the master file 143 shown in drawing 3 , and the Ruhr file 144 shown in drawing 5 , and draws up a fixed form document as shown in drawing 2 in permuting the value of a master file 143 by the value [**** / respectively] according to the Ruhr of this Ruhr file 144.

[0009] Drawing 3 is drawing showing an example of the master file of the document shown in drawing 2 . A predetermined document is drawn up at the same time it embeds a "key" into the part permuted beforehand, and the master file 143 shown in drawing 3 is stored in the storing section 14. For example, this master file 143 consists of each attribute of the graphic form and image in each format information on the alphabetic character, paragraph, and page which embedded the "key" for permuting, or a document. The type of the line is expressed with the first four characters of a master file in this drawing. For example, "Para" is data showing a paragraph attribute and expresses the attribute in the figure indicated in the subsequent parenthesis. "Tabs" means character spacing and expresses the attribute in the figure indicated in the subsequent parenthesis. "Text[Font[" means text and expresses attributes, such as the graphic size, font, etc., in the figure indicated in the subsequent parenthesis. "String" expresses the character string used as a fixed form document. "Brek [Type [0]]" means form feed information. "Page" is data showing page format information. "$$" means the beginning of the "key" of this invention, and the subsequent alphabet is a "key." for example, — since "STR2" has incomes, such as a character string "public pension, in a character string "Taro Fuji" as for "STR1" ..... it can fill up — " — it corresponds to a graph [in / "NUM1" and / in "INCOME GRAPH" / drawing 2], respectively. [a figure "30"]

[0010] Drawing 4 is drawing for explaining that shared memory space works as a working memory of a user program and a document preparation program. In drawing 4 , the document preparation program 13 is started as a child process of a user program 11, and is set in the condition that a user program 11 can be started as initial setting. Before a user program 11 starts the document preparation program 13, on the main memory for performing a user program 11, with the data communication means 12, it secures the shared memory space 121 and holds the address inside. Then, a user program 11 starts the document preparation program 13, and tells the address of the shared memory space 121 to the document preparation program 13 which is a child process through the data communication means 12. Thereby, the shared memory space 121 can be accessed from both of the processes. The character-string data with which the data communication of a user program 11 and the document preparation program 13 was computed by the user program 11, numeric data, image data, etc. are sent to the document preparation program 13 through the data communication means 12. in the case of character-string data or numeric data, these data remain as they are by the

sentence generation means 133 — or it is processed and is sent out to the data permutation means 134. Moreover, by the image data-conversion means 132, in the case of image data, it is changed into the format which can be processed with the data permutation means 134, and it is sent out to the data permutation means 134. And with the data permutation means 134, it replaces by the above-mentioned data which received the part of the conversion "a key" searched with the retrieval means 135 from the user program 11 through the data origination means 136, and this is copied to the document data file 141.

[0011] Drawing 5 shows the Ruhr file for explaining how the permutation part of a fixed form document is replaced in a document preparation program. Here, the activation section of the Ruhr corresponding to it is performed based on ""the key 1 extracted with the retrieval means 135", for example, "STR", STR2", "NUM1", etc. In the activation section of the Ruhr, since the function of the usual C can be described, the function which takes out character-string data and numeric data from a user program 11, and the function which converts image data are prepared. Delivery of the data between this process is performed using the shared memory space 121 and the signal which are shown in drawing 4 .

[0012] In drawing 5 , when the condition part corresponding to a "key" matches in the condition part of the Ruhr file 144, the activation section is performed. First, the example which permutes directly the character-string data received from the user program 11 is explained. In the Ruhr processing section 131, if "STR1" enters as a "key", the condition part of the Ruhr file 144 will be searched, and the corresponding activation section will be specified and performed. That is, while performing the function "GetMessage_Str" and writing "USER NAME" in the shared memory space 121, "Taro Fuji" who received through the shared memory space 121 and received the user name, for example, "Taro Fuji", to the variable "sval" is substituted from a user program 11 through the data communication means 12 by notifying having written in through the data communication means 12. By the sentence generation means 133, this assigned value is sent to the data permutation means 134 as a returned value, and is copied to the document data file 141.

[0013] Next, the example which processes the character-string data received from the user program 11 is explained. In the Ruhr processing section 131, if "STR2" enters as a "key", the condition part of the Ruhr file 144 will be searched, and the corresponding activation section will be specified and performed. For example, by the Ruhr file 144 of drawing 5 , by performing the function "GetMessage_Num", processing writing "SILVERINCOME" in the shared memory space 121 etc. like the case of "STR1", and asking a user program 11, "the information on whether there is any income of old age, "1", and 0" are obtained from a user program 11 through the data communication means 12, and it substitutes for the variable "nval". [for example,] Next, the function "GetMessage_Str" is performed and it asks similarly a user program 11 by processing which writes "SILVER MAIN INCOME" in the shared memory space 121. Consequently, the item of the main incomes of old age, for example, a "public pension", is acquired through data communication means 12 grade, and it substitutes for the variable "sval." When the value of "nval" is "1", the function "MakeSentence" is performed, a character string is generated combining the variable "sval", and other arguments, and it is returned as a return value. namely, the sentence generation means 133 — the value "a public pension" of "sval" — "— since there is an income of a grade .... of old age — it may fill up — " — it is combined and is sent out to the data permutation means 134. If "nval" is "0" when other namely, it will be sent ["since there was no income by the check item of Chapter 3, it has calculated as what is not", and] out as it is to the data permutation means 134. Then, the character string generated by the data permutation means 134 with the sentence generation means 133 is copied to the document data file 141 of an intermediate form.

[0014] Next, the example of numeric data is explained. In the Ruhr processing section 131, if "NUM1" enters as a "key", the condition part of the Ruhr file 144 will be searched, and the corresponding activation section will be specified and performed. For example, the function "GetMessage_Num" is performed, and the value (the example of drawing 2 monthly amount of the living expenses of old age) of "SILVER COST M" is similarly acquired from a user program 11 using the data communication means 12, and it substitutes for the variable "nval." Finally, the example of image data is explained. In the Ruhr processing section 131, if "INCOME_GRAPH" enters as a "key", the bit map data about the whole life income and outgo which created "INCOMEBM" by the user program 11 through the data communication means 12 similarly by transmitting to a user program 11 through the shared memory

space 121 will be obtained. For example, the file name containing corresponding image data is received through the shared memory space 121, and the file name is returned as a return value. And the image data-conversion means 132 changes the contents of the file name into an intermediate form, and copies them to the document data file 141 through the data permutation means 134. The above actuation is repeated and the document data file 141 of an intermediate form is created. After that, it changes into the form in which the usual document edit is possible from the document data file 141 of an intermediate form, and a text file 142 is created.

[0015] Next, the actuation about the document preparation of fixed form document preparation equipment is explained with reference to drawing 6 thru/or drawing 9 . Drawing 6 is the flow chart of the retrieval means in this example. At step 61, the retrieval means 135 reads the data of the master file 143 shown in drawing 3 a party every. At step 62, it investigates whether the above-mentioned retrieval means 135 read the data of all the lines of a master file 143. When all the lines of a master file 143 are not read, it progresses to step 63, and reading is ended when all the lines of a master file 143 are read. At step 63, it investigates whether "STR1" etc. shown in "the key for conversion [to every data of the line read with the retrieval means 135] into it", for example, drawing 3 , is contained. If the "key" for conversion is contained, it progresses to step 64, and if the "key" for conversion is not contained, it will progress to step 65. At step 64, the Ruhr file 144 for replacing the "key" for conversion of the Ruhr processing section 131 so that it may become a predetermined document is read, and the Ruhr is started. That is, the "key" embedded in the document is searched with the retrieval means 135, and processing of delivery and drawing 7 mentioned later is performed in this to the Ruhr processing section 131. Then, the next line of return and a master file 143 is read into step 61, and it continues until the line of the last of a file finishes (EOF=End Of File) reading this. At step 65, when there is "no key" for conversion by inspection of step 63, the character string of the line etc. is copied to the document data file 141 as it is through the data permutation means 134.

[0016] Next, step 64 shown in drawing 6 is explained to a detail with reference to drawing 7 R> 7. That is, in step 64, if the "key" for conversion is searched and the Ruhr for conversion is started, the Ruhr processing section 131 will read the Ruhr file 144 shown in drawing 5 R> 5, and will perform a user program 11 and data communication through the data communication means 12 according to description of the activation section. Drawing 7 is the flow chart which shows an example of the flow of processing through the data communication means between a document preparation program and a user program, and shows the detail of step 64 shown in drawing 6 . Drawing 8 shows an example of the flow of the processing in a document preparation program. Drawing 9 R> 9 shows an example of the flow of the processing in a user program. And in case the flow chart shown in drawing 8 and drawing 9 performs the Ruhr in step 72 shown in drawing 7 , it is the flow of the processing performed between a user program 11 and the document preparation program 13. First, the Ruhr processing section 131 searches the Ruhr corresponding to a "key" with step 71 by the Ruhr file 144. At step 72, the Ruhr processing section 131 performs the Ruhr activation section corresponding to a "key" according to said searched Ruhr.

[0017] That is, the flow chart of drawing 8 which shows activation of the Ruhr activation section, and drawing 9 is explained. At step 81, processing to which the Ruhr processing section 131 copies the "key" information retrieved by the retrieval means 135 to the shared memory space 121 through the data communication means 12 is performed. For example, when "key" information is "STR1", in the case of "USER NAME" and "STR2", "SILVER INCOME" etc. is copied in the shared memory space 121. At step 82, the signal which tells that the Ruhr processing section 131 copied the above-mentioned character string to the user program 11 through the data communication means 12 in the shared memory space 121 is transmitted.

[0018] The processing by the side of the user program 11 which received the above-mentioned signal is explained according to the flow chart of drawing 9 . At step 91, it investigates whether the signal from the document preparation program 13 was received. This investigation is continued until a signal comes from the document preparation program 13. If said signal is received, it will progress to step 92. At step 92, it investigates whether said signal is a signal in which termination of a user program 11 is shown. After the business of a user program 11 is completed, when the signal of termination is obtained, processing is ended and the signal of termination does not come out, it progresses to the following step. At step 93, it is sent from the document preparation program 13, and the "key" information temporarily stored in the shared memory space 121 is copied. For example, "USER

NAME" or "SILVER INCOME" is copied by the user program 11. At step 94, the value corresponding to the aforementioned "a key" information is computed by the user program 11. For example, the value corresponding to a character string is read among the data currently held by processing ending, or predetermined processing is performed from a character string, and let the processing result be a calculation result. At step 95, said information which was computed and was searched for is copied to the shared memory space 121. This information is equivalent to the "key" information created and stored by the user-program 11 side, and has the file name into which image data, such as character strings, such as "Taro Fuji", "1", and "0", a numeric value, or a graph, went. At step 96, the signal in which it is shown that the information corresponding to "key" information was stored in the shared memory space 121 is transmitted to the document preparation program 13.

[0019] The processing by the side of the document preparation program 13 which received the above-mentioned signal is again returned and explained to the flow chart of drawing 8 . At step 83, it investigates whether the Ruhr processing section 131 received the signal of said step 96 from the user program 11. This investigation is continued until a reply signal comes. At step 84, the information at the time of a user program 11 storing in the shared memory space 121 in said step 95 is copied. And this information, for example, "Taro Fuji", is permuted in a document by the document preparation program 13.

[0020] As mentioned above, as a result of performing the Ruhr activation section of step 72 shown in drawing 7 , it returns to step 73. That is, at step 73, the Ruhr processing means 131 investigates whether the attribute of a "key" is image data. If the attribute of a "key" is image data, it will progress to step 74, and if it is not image data, it will progress to step 76. At step 74, the image data-conversion means 132 changes the image data of the return value of the Ruhr into a format of the document data file 141. At step 75, the data permutation means 134 copies the contents of the file changed with the image data-conversion means 132 to the document data file 141, and processing is ended after that. At step 76, when the attribute of a "key" is not image data, the data permutation means 134 copies the value changed according to the Ruhr to the document data file 141. And the data in the document data file 141 are changed into the form in which the usual document edit is possible, and are stored in a text file 142. Therefore, a fixed form document is drawn up automatically, without the data stored in the text file 142 concerned troubling an operator's hand by the printer of the document output section 153 etc.

[0021] Although what performs interprocess communication through shared memory space as a data communication means was explained to the above example, it is clear that use a protocol as a modification, without using shared memory space, can also use the data communication means which communicates with an external user program through communication wires, such as the interior or LAN, and the same effectiveness is acquired. Moreover, with the fixed form document preparation equipment of this example, after text file creation, the document can be displayed on the window on a display, or can be printed [**** / editing the document] out to an attached printer using a keyboard or a mouse.

[0022]

[Effect of the Invention] Since a user program computes the information corresponding to the aforementioned "a key" information and sends to document preparation equipment (document preparation program) according to the Ruhr of the 2nd file based on the "key" information on the 1st file equipped with "key" information according to this invention, an operator is only starting of a user program etc., and he does not need to draw up a fixed form document, inserting various information one by one. Therefore, the fixed form document preparation equipment of this invention can draw up a fixed form document easily, without an operator intervening, if various kinds of 1st file and 2nd file are prepared.

[Translation done.]

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TECHNICAL FIELD

[Industrial Application] This invention relates to suitable fixed form document preparation equipment to draw up the standardized document with respect to the document preparation equipment which operates on OS to which multi-processes, such as UNIX, can work. In addition, in this specification, a "document" does not mean only the sentence which consists only of an alphabetic character, but the document which inserts an image, a graph, a table, etc. into a document and is drawn up is included.

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PRIOR ART

[Description of the Prior Art] Conventionally, with this kind of document preparation equipment, when drawing up a document with objects, such as a text, drawing, and a graph, and an operator inputted data into the specific part in a document or started other user programs, the fixed form document was drawn up based on the value processed by that program. As such document preparation equipment, there are some which are indicated by JP,1-211067,A, for example. Moreover, with another document preparation equipment, it was partially contained in the fixed form document, the variable region which changes written contents for every fixed form document of that was prepared, and the fixed form document was automatically completed by embedding a corresponding standard unit to this variable region. As such document preparation equipment, there are some which are indicated by JP,1-231162,A, for example.

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EFFECT OF THE INVENTION

[Effect of the Invention] Since a user program computes the information corresponding to the aforementioned "a key" information and sends to document preparation equipment (document preparation program) according to the Ruhr of the 2nd file based on the "key" information on the 1st file equipped with "key" information according to this invention, an operator is only starting of a user program etc., and he does not need to draw up a fixed form document, inserting various information one by one. Therefore, the fixed form document preparation equipment of this invention can draw up a fixed form document easily, without an operator intervening, if various kinds of 1st file and 2nd file are prepared.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] With the document preparation equipment indicated by above-mentioned JP,1-211067,A, it was not considered at all about an operator drawing up a lot of fixed form documents by batch processing etc. at the time of an absence. Therefore, in case a document was drawn up with the above-mentioned conventional technique, actuation, such as a call of the document of a format with which the operator had to be in the document preparation equipment side, and was always decided, and starting of the manual entry of data and other user programs, was required. Moreover, with the document preparation equipment indicated by JP,1-231162,A, the standard unit which consists of each, such as document data, image data, and numeric data, had to be prepared altogether beforehand, and a fixed form document was not able to be drawn up using the document data currently beforehand created by other user programs, image data, or numeric data.
[0004] This invention solves the above technical problems, only starts a document preparation program from a user program, and aims at offering the fixed form document preparation equipment which performs automatic creation of a fixed form document without actuation of an operator.

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MEANS

[Means for Solving the Problem] In order to attain said purpose, the document preparation equipment of this invention It has the means of communications (12 of drawing 1) which asks to a user program (11 of drawing 1). The 1st file which described the fixed form document including the format information which gave the "key" to the document element which should draw up a fixed form document based on the inquiry result, and should be permuted (143 of drawing 1), A storage means to memorize the 2nd file (144 of drawing 1) which described the regulation which should be beforehand processed for every class of above "a key" (14 of drawing 1), A retrieval means to search a "key" from the 1st file (143) memorized by the storage means (14) concerned (135 of drawing 1), With reference to the regulation of the 2nd file (144) memorized by said storage means (14), said means of communications (12) is minded based on the regulation corresponding to the "key" of the retrieval result of said retrieval means (135). A processing means to perform processing for asking a user program (11) the information corresponding to a "key" (131 of drawing 1), A data origination means to create the data of the document element which should be permuted from the data obtained based on the inquiry result of the processing means (131) concerned (132 of drawing 1 , 133), It consists of permutation means (134 of drawing 1) to permute the data of the document element created with the data origination means (132 133) concerned by the permutation part corresponding to a "key."

[0006]

[work —] for The 1st file which described the fixed form document which includes the format information which gave the "key" to the document element which should be permuted in a fixed form document in a storage means, for example, a master file, and the 2nd file which described the regulation which should be processed for every class of above "a key" are memorized, respectively. A retrieval means searches the "key" currently embedded at the 1st file memorized by the above-mentioned storage means. A processing means is asked to a user program through said means of communications based on the regulation corresponding to the "key" which it is as a result of [of said retrieval means] retrieval with reference to the regulation of the 2nd file memorized by said storage means, for example, the Ruhr file. In a user program, the information corresponding to the above "a key" is computed and a processing means is returned through said data communication means. A data origination means creates the data of the document element which was obtained from the user program as an inquiry result of said processing means and which should be permuted. And a data permutation means permutes desired data by the part of the document element corresponding to a "key" with the data which said data origination means created. As for the document element data obtained from a user program, character-string data, numeric data, image data, etc. are contained. A fixed form document is drawn up automatically, without operating giving a command for an operator taking out the data computed by other user programs one by one, and inserting them into a document element etc., if the 1st file and the 2nd file for drawing up a desired fixed form document as mentioned above are created beforehand.

[0007]

[The example of fruit **] Drawing 1 is a block block diagram for explaining one example of the fixed form document preparation equipment in this invention. The user program 11 to which fixed form document preparation equipment creates document element data, such as character-string data, numeric data, or image data, in drawing 1 R> 1, The document element data created by the user program 11 concerned by the demand from a document preparation program The data communication

means 12 for incorporating from a user program 11, and the document preparation program 13 which draws up a fixed form document based on the document element data created by the user program 11 concerned, It consists of the storing section 14 which stores various files required for fixed form document preparation equipment, and the I/O section 15 which outputs the document concerned while drawing up / editing a document. The data communication means 12 for exchanging data between the above-mentioned user program 11 and the document preparation program 13 is performed through the shared memory space 121. The above-mentioned document-preparation program 13 consists of the Ruhr processing section 131 which processes in order to draw up a document according to the Ruhr of the below-mentioned Ruhr file 144, a data permutation means 134 replaced with the document data which created the permutation part in a fixed form document, or image data, a retrieval means 135 search the permutation part in the below-mentioned master file, and a data origination means 136 draw up an image or a document. Moreover, the above-mentioned data origination means 136 consists of an image data-conversion means 132 to change into a format of a document data file the image data obtained by the above-mentioned data communication means 12, and a sentence generation means 133 for generating document data from the character-string data obtained by the above-mentioned data communication means 12, and numeric data. The document data file 141 stored in the form of a middle format of the document with which the storing section 14 was created by the document preparation program 13, The text file 142 which changes and stores the data of the document data file 141 concerned in the form in which the usual document edit is possible, The master file 143 which consists of each attribute of the graphic form and image in each format information, such as an alphabetic character, a paragraph, a page, etc. which embedded the "key" for changing a fixed form sentence into the document, or a document, It consists of Ruhr files 144 in which the Ruhr for the Ruhr processing section 131 to process for document preparation is stored. The input section which the I/O section 15 consists of a keyboard or a mouse etc. which is not illustrated, and inputs information, such as various data and directions information, It consists of the document editorial department 151 which is based on input from the input section etc., and draws up / edits a document etc., a document display 152 for displaying the document drawn up / edited by the document editorial department 151, and the document output section 153 for outputting the drawn-up document by a printer etc.

[0008] Drawing 2 is drawing for explaining an example of the fixed form document drawn up by the fixed form document preparation equipment in this example. An example of the fund allocation for standing a life design is shown in the document "5. the fundamental view about individual LIFE event fund allocation" shown in drawing 2 with the graph. The above fixed form documents are made, and a name, an item, and the amount of money differ from an explanatory note etc. by every customer to ship this to those who are carried by the customer list. And it is a serious activity for an operator to call the data of name and others of each customer which are stored in the database of a user program 11 etc. one by one, and to insert them in the document of drawing 2 . For example, the fixed form document shown in drawing 2 was a document for shipping to "Taro Fuji" stored in data **-SU of a user program 11, and in order to draw up this document, actuation for filling in an item, the amount of money, an explanatory note, etc. about Taro Fuji computed from data **-SU as the name "Taro Fuji" was performed by the operator. Then, the fixed form document preparation equipment of this example is for abolishing the activity in which an operator inserts the above-mentioned name, an item, the amount of money, an explanatory note, etc. one by one. That is, the fixed form document preparation equipment of this example has the master file 143 shown in drawing 3 , and the Ruhr file 144 shown in drawing 5 , and draws up a fixed form document as shown in drawing 2 in permuting the value of a master file 143 by the value [**** / respectively] according to the Ruhr of this Ruhr file 144.

[0009] Drawing 3 is drawing showing an example of the master file of the document shown in drawing 2 . A predetermined document is drawn up at the same time it embeds a "key" into the part permuted beforehand, and the master file 143 shown in drawing 3 is stored in the storing section 14. For example, this master file 143 consists of each attribute of the graphic form and image in each format information on the alphabetic character, paragraph, and page which embedded the "key" for permuting, or a document. The type of the line is expressed with the first four characters of a master file in this drawing. For example, "Para" is data showing a paragraph attribute and expresses the attribute in the figure indicated in the subsequent parenthesis. "Tabs" means character spacing and

expresses the attribute in the figure indicated in the subsequent parenthesis. "Text[Font[" means text and expresses attributes, such as the graphic size, font, etc., in the figure indicated in the subsequent parenthesis. "String" expresses the character string used as a fixed form document. "Brek [Type [0]]" means form feed information. "Page" is data showing page format information. "$$" means the beginning of the "key" of this invention, and the subsequent alphabet is a "key." for example, — since "STR2" has incomes, such as a character string "public pension, in a character string "Taro Fuji" as for "STR1" ..... it can fill up — " — it corresponds to a graph [in / "NUM1" and / in "INCOME GRAPH" / drawing 2], respectively. [a figure "30"]

[0010] Drawing 4 is drawing for explaining that shared memory space works as a working memory of a user program and a document preparation program. In drawing 4 , the document preparation program 13 is started as a child process of a user program 11, and is set in the condition that a user program 11 can be started as initial setting. Before a user program 11 starts the document preparation program 13, on the main memory for performing a user program 11, with the data communication means 12, it secures the shared memory space 121 and holds the address inside. Then, a user program 11 starts the document preparation program 13, and tells the address of the shared memory space 121 to the document preparation program 13 which is a child process through the data communication means 12. Thereby, the shared memory space 121 can be accessed from both of the processes. The character-string data with which the data communication of a user program 11 and the document preparation program 13 was computed by the user program 11, numeric data, image data, etc. are sent to the document preparation program 13 through the data communication means 12. in the case of character-string data or numeric data, these data remain as they are by the sentence generation means 133 — or it is processed and is sent out to the data permutation means 134. Moreover, by the image data-conversion means 132, in the case of image data, it is changed into the format which can be processed with the data permutation means 134, and it is sent out to the data permutation means 134. And with the data permutation means 134, it replaces by the above-mentioned data which received the part of the conversion "a key" searched with the retrieval means 135 from the user program 11 through the data origination means 136, and this is copied to the document data file 141.

[0011] Drawing 5 shows the Ruhr file for explaining how the permutation part of a fixed form document is replaced in a document preparation program. Here, the activation section of the Ruhr corresponding to it is performed based on ""the key 1 extracted with the retrieval means 135", for example, "STR", STR2", "NUM1", etc. In the activation section of the Ruhr, since the function of the usual C can be described, the function which takes out character-string data and numeric data from a user program 11, and the function which converts image data are prepared. Delivery of the data between this process is performed using the shared memory space 121 and the signal which are shown in drawing 4 .

[0012] In drawing 5 , when the condition part corresponding to a "key" matches in the condition part of the Ruhr file 144, the activation section is performed. First, the example which permutes directly the character-string data received from the user program 11 is explained. In the Ruhr processing section 131, if "STR1" enters as a "key", the condition part of the Ruhr file 144 will be searched, and the corresponding activation section will be specified and performed. That is, while performing the function "GetMessage_Str" and writing "USER NAME" in the shared memory space 121, "Taro Fuji" who received through the shared memory space 121 and received the user name, for example, "Taro Fuji", to the variable "sval" is substituted from a user program 11 through the data communication means 12 by notifying having written in through the data communication means 12. By the sentence generation means 133, this assigned value is sent to the data permutation means 134 as a returned value, and is copied to the document data file 141.

[0013] Next, the example which processes the character-string data received from the user program 11 is explained. In the Ruhr processing section 131, if "STR2" enters as a "key", the condition part of the Ruhr file 144 will be searched, and the corresponding activation section will be specified and performed. For example, by the Ruhr file 144 of drawing 5 , by performing the function "GetMessage_Num", processing writing "SILVERINCOME" in the shared memory space 121 etc. like the case of "STR1", and asking a user program 11, "the information on whether there is any income of old age, "1", and 0" are obtained from a user program 11 through the data communication means 12, and it substitutes for the variable "nval". [for example,] Next, the function "GetMessage_Str" is

performed and it asks similarly a user program 11 by processing which writes "SILVER MAIN INCOME" in the shared memory space 121. Consequently, the item of the main incomes of old age, for example, a "public pension", is acquired through data communication means 12 grade, and it substitutes for the variable "sval." When the value of "nval" is "1", the function "MakeSentence" is performed, a character string is generated combining the variable "sval", and other arguments, and it is returned as a return value. namely, the sentence generation means 133 — the value "a public pension" of "sval" — "— since there is an income of a grade .... of old age — it may fill up — " — it is combined and is sent out to the data permutation means 134. If "nval" is "0" when other namely, it will be sent ["since there was no income by the check item of Chapter 3, it has calculated as what is not", and] out as it is to the data permutation means 134. Then, the character string generated by the data permutation means 134 with the sentence generation means 133 is copied to the document data file 141 of an intermediate form.

[0014] Next, the example of numeric data is explained. In the Ruhr processing section 131, if "NUM1" enters as a "key", the condition part of the Ruhr file 144 will be searched, and the corresponding activation section will be specified and performed. For example, the function "GetMessage_Num" is performed, and the value (the example of drawing 2 monthly amount of the living expenses of old age) of "SILVER COST M" is similarly acquired from a user program 11 using the data communication means 12, and it substitutes for the variable "nval." Finally, the example of image data is explained. In the Ruhr processing section 131, if "INCOME_GRAPH" enters as a "key", the bit map data about the whole life income and outgo which created "INCOMEBM" by the user program 11 through the data communication means 12 similarly by transmitting to a user program 11 through the shared memory space 121 will be obtained. For example, the file name containing corresponding image data is received through the shared memory space 121, and the file name is returned as a return value. And the image data-conversion means 132 changes the contents of the file name into an intermediate form, and copies them to the document data file 141 through the data permutation means 134. The above actuation is repeated and the document data file 141 of an intermediate form is created. After that, it changes into the form in which the usual document edit is possible from the document data file 141 of an intermediate form, and a text file 142 is created.

[0015] Next, the actuation about the document preparation of fixed form document preparation equipment is explained with reference to drawing 6 thru/or drawing 9 . Drawing 6 is the flow chart of the retrieval means in this example. At step 61, the retrieval means 135 reads the data of the master file 143 shown in drawing 3 a party every. At step 62, it investigates whether the above-mentioned retrieval means 135 read the data of all the lines of a master file 143. When all the lines of a master file 143 are not read, it progresses to step 63, and reading is ended when all the lines of a master file 143 are read. At step 63, it investigates whether "STR1" etc. shown in "the key for conversion [to every data of the line read with the retrieval means 135] into it", for example, drawing 3 , is contained. If the "key" for conversion is contained, it progresses to step 64, and if the "key" for conversion is not contained, it will progress to step 65. At step 64, the Ruhr file 144 for replacing the "key" for conversion of the Ruhr processing section 131 so that it may become a predetermined document is read, and the Ruhr is started. That is, the "key" embedded in the document is searched with the retrieval means 135, and processing of delivery and drawing 7 mentioned later is performed in this to the Ruhr processing section 131. Then, the next line of return and a master file 143 is read into step 61, and it continues until the line of the last of a file finishes (EOF=End Of File) reading this. At step 65, when there is "no key" for conversion by inspection of step 63, the character string of the line etc. is copied to the document data file 141 as it is through the data permutation means 134.

[0016] Next, step 64 shown in drawing 6 is explained to a detail with reference to drawing 7 R> 7. That is, in step 64, if the "key" for conversion is searched and the Ruhr for conversion is started, the Ruhr processing section 131 will read the Ruhr file 144 shown in drawing 5 R> 5, and will perform a user program 11 and data communication through the data communication means 12 according to description of the activation section. Drawing 7 is the flow chart which shows an example of the flow of processing through the data communication means between a document preparation program and a user program, and shows the detail of step 64 shown in drawing 6 . Drawing 8 shows an example of the flow of the processing in a document preparation program. Drawing 9 R> 9 shows an example of the flow of the processing in a user program. And in case the flow chart shown in drawing 8 and drawing 9 performs the Ruhr in step 72 shown in drawing 7 , it is the flow of the processing

performed between a user program 11 and the document preparation program 13. First, the Ruhr processing section 131 searches the Ruhr corresponding to a "key" with step 71 by the Ruhr file 144. At step 72, the Ruhr processing section 131 performs the Ruhr activation section corresponding to a "key" according to said searched Ruhr.

[0017] That is, the flow chart of drawing 8 which shows activation of the Ruhr activation section, and drawing 9 is explained. At step 81, processing to which the Ruhr processing section 131 copies the "key" information retrieved by the retrieval means 135 to the shared memory space 121 through the data communication means 12 is performed. For example, when "key" information is "STR1", in the case of "USER NAME" and "STR2", "SILVER INCOME" etc. is copied in the shared memory space 121. At step 82, the signal which tells that the Ruhr processing section 131 copied the above-mentioned character string to the user program 11 through the data communication means 12 in the shared memory space 121 is transmitted.

[0018] The processing by the side of the user program 11 which received the above-mentioned signal is explained according to the flow chart of drawing 9 . At step 91, it investigates whether the signal from the document preparation program 13 was received. This investigation is continued until a signal comes from the document preparation program 13. If said signal is received, it will progress to step 92. At step 92, it investigates whether said signal is a signal in which termination of a user program 11 is shown. After the business of a user program 11 is completed, when the signal of termination is obtained, processing is ended and the signal of termination does not come out, it progresses to the following step. At step 93, it is sent from the document preparation program 13, and the "key" information temporarily stored in the shared memory space 121 is copied. For example, "USER NAME" or "SILVER INCOME" is copied by the user program 11. At step 94, the value corresponding to the aforementioned "a key" information is computed by the user program 11. For example, the value corresponding to a character string is read among the data currently held by processing ending, or predetermined processing is performed from a character string, and let the processing result be a calculation result. At step 95, said information which was computed and was searched for is copied to the shared memory space 121. This information is equivalent to the "key" information created and stored by the user-program 11 side, and has the file name into which image data, such as character strings, such as "Taro Fuji", "1", and "0", a numeric value, or a graph, went. At step 96, the signal in which it is shown that the information corresponding to "key" information was stored in the shared memory space 121 is transmitted to the document preparation program 13.

[0019] The processing by the side of the document preparation program 13 which received the above-mentioned signal is again returned and explained to the flow chart of drawing 8 . At step 83, it investigates whether the Ruhr processing section 131 received the signal of said step 96 from the user program 11. This investigation is continued until a reply signal comes. At step 84, the information at the time of a user program 11 storing in the shared memory space 121 in said step 95 is copied. And this information, for example, "Taro Fuji", is permuted in a document by the document preparation program 13.

[0020] As mentioned above, as a result of performing the Ruhr activation section of step 72 shown in drawing 7 , it returns to step 73. That is, at step 73, the Ruhr processing means 131 investigates whether the attribute of a "key" is image data. If the attribute of a "key" is image data, it will progress to step 74, and if it is not image data, it will progress to step 76. At step 74, the image data-conversion means 132 changes the image data of the return value of the Ruhr into a format of the document data file 141. At step 75, the data permutation means 134 copies the contents of the file changed with the image data-conversion means 132 to the document data file 141, and processing is ended after that. At step 76, when the attribute of a "key" is not image data, the data permutation means 134 copies the value changed according to the Ruhr to the document data file 141. And the data in the document data file 141 are changed into the form in which the usual document edit is possible, and are stored in a text file 142. Therefore, a fixed form document is drawn up automatically, without the data stored in the text file 142 concerned troubling an operator's hand by the printer of the document output section 153 etc.

[0021] Although what performs interprocess communication through shared memory space as a data communication means was explained to the above example, it is clear that use a protocol as a modification, without using shared memory space, can also use the data communication means which communicates with an external user program through communication wires, such as the interior or

LAN, and the same effectiveness is acquired. Moreover, with the fixed form document preparation equipment of this example, after text file creation, the document can be displayed on the window on a display, or can be printed [**** / editing the document] out to an attached printer using a keyboard or a mouse.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is a block block diagram for explaining one example of the fixed form document preparation equipment in this invention.
[Drawing 2] It is drawing for explaining an example of the fixed form document drawn up by the fixed form document preparation equipment in this example.
[Drawing 3] It is drawing showing an example of the master file of the document shown in drawing 2 .
[Drawing 4] It is drawing for explaining that shared memory space works as a working memory of a user program and a document preparation program.
[Drawing 5] In a document preparation program, the Ruhr file for explaining how the permutation part of a fixed form document is replaced is shown.
[Drawing 6] It is the flow chart of the retrieval means in this example.
[Drawing 7] It is the flow chart which shows an example of the flow of processing through the data communication means between a document preparation program and a user program, and the detail of step 64 shown in drawing 6 is shown.
[Drawing 8] An example of the flow of the processing in a document preparation program is shown.
[Drawing 9] An example of the flow of the processing in a user program is shown.
[Description of Notations]
11 ... User program 14 ... Storing section
12 ... Data communication means 15 ... I/O section
13 ... Document preparation program
121 ... Shared memory space 141 ... Document data file
131 ... Ruhr processing section 142 ... Text file
132 ... Image data-conversion means 143 ... Master file
133 ... Sentence generation means 144 ... Ruhr file
134 ... Data permutation means 151 ... Document editorial department
135 ... Retrieval means 152 ... Document display
136 ... Data origination means 153 ... Document output section

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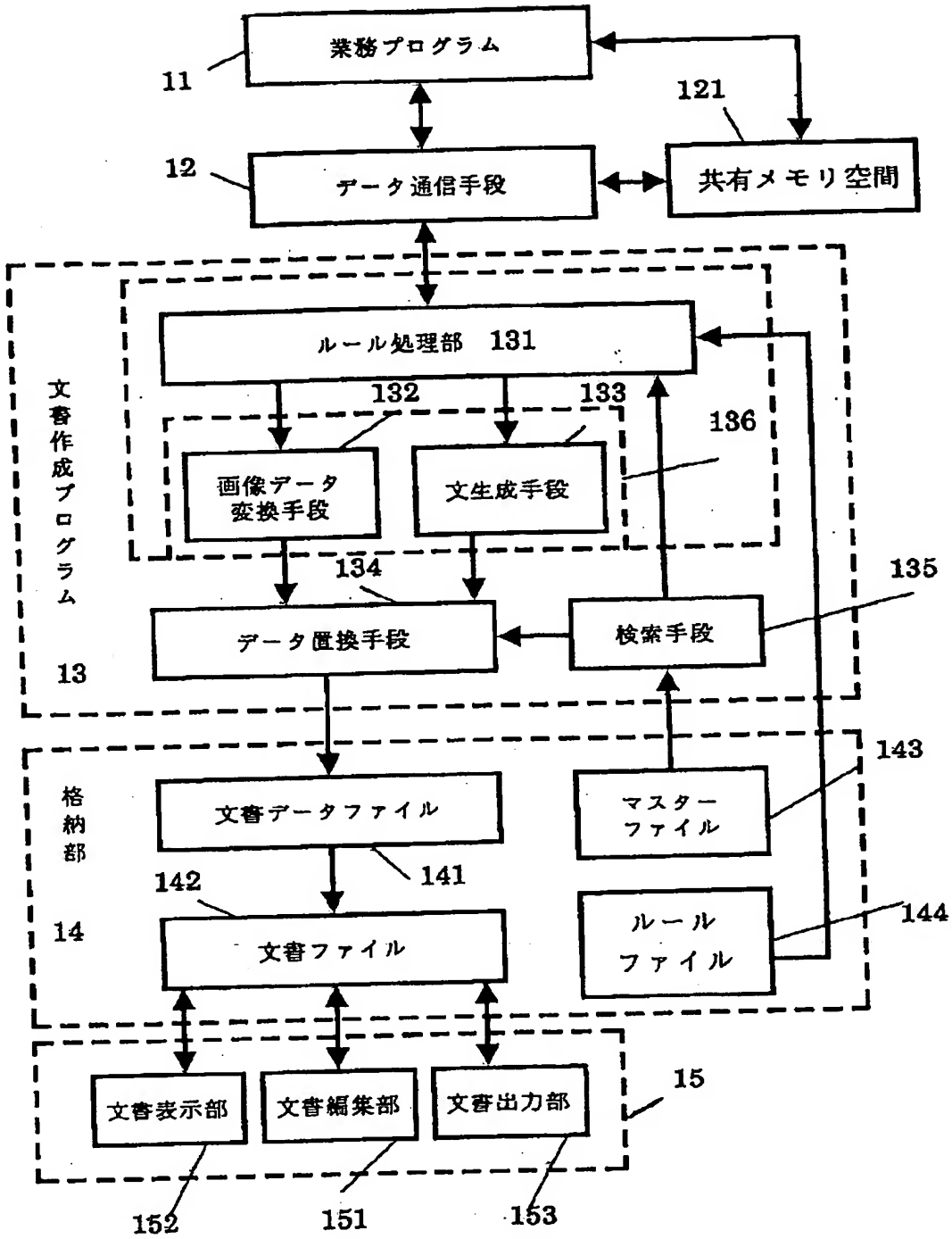
DRAWINGS

[Drawing 1]

図1


業務プログラム
11
121
12
データ通信手段
共有メモリ空間
文書作成プログラム
ルール処理部 131
132
133
136
画像データ変換手段
文生成手段
134
135
データ置換手段
検索手段
13
格納部
文書データファイル
マスターファイル
143
141
142
144
14
文書ファイル
ルールファイル
15
文書表示部
文書編集部
文書出力部
152
151
153

[Drawing 2]

図2

19910412-123

5. 個別ライフイベント資金配分についての基本的な考え方

5.1. 収入と支出

■支　出

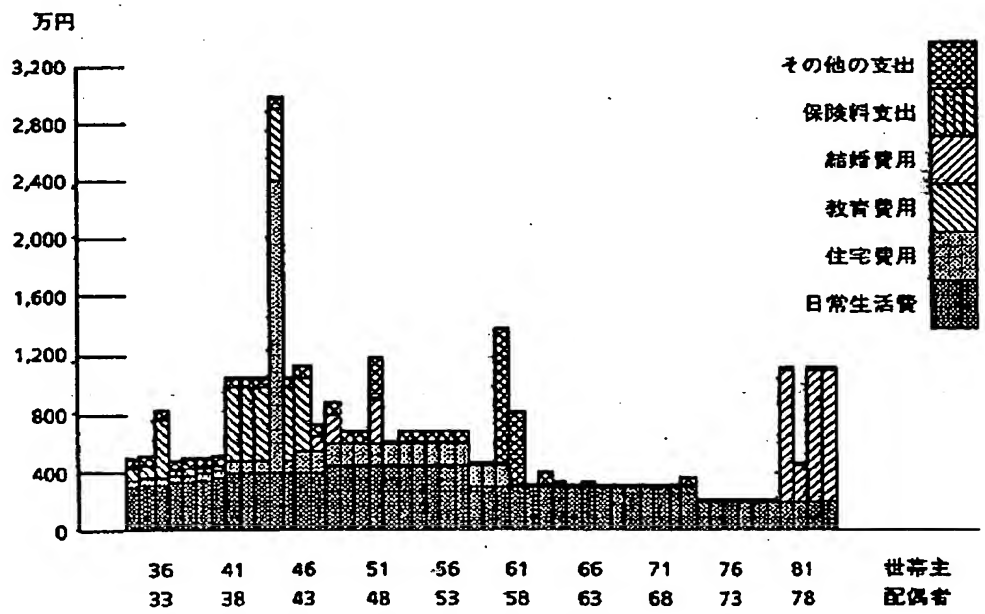
富士太郎様のご希望の老後の生活費は、月額30万円です。この金額全てを賄うためには退職時点で7,109万円の資金が必要となります。

しかし、富士太郎様の老後におきましては、公的年金等の収入がありますので、老後の生活費用の一部を補填することができます。

■収　入

富士太郎様の場合、第3章の確認項目に基づき、公的年金、企業年金、個人年金、受取保険金などの一時収入の合計が5,695万円(月額24.5万円)があると予測されます。

これらの、収入と支出をグラフにすると以下の通りです。



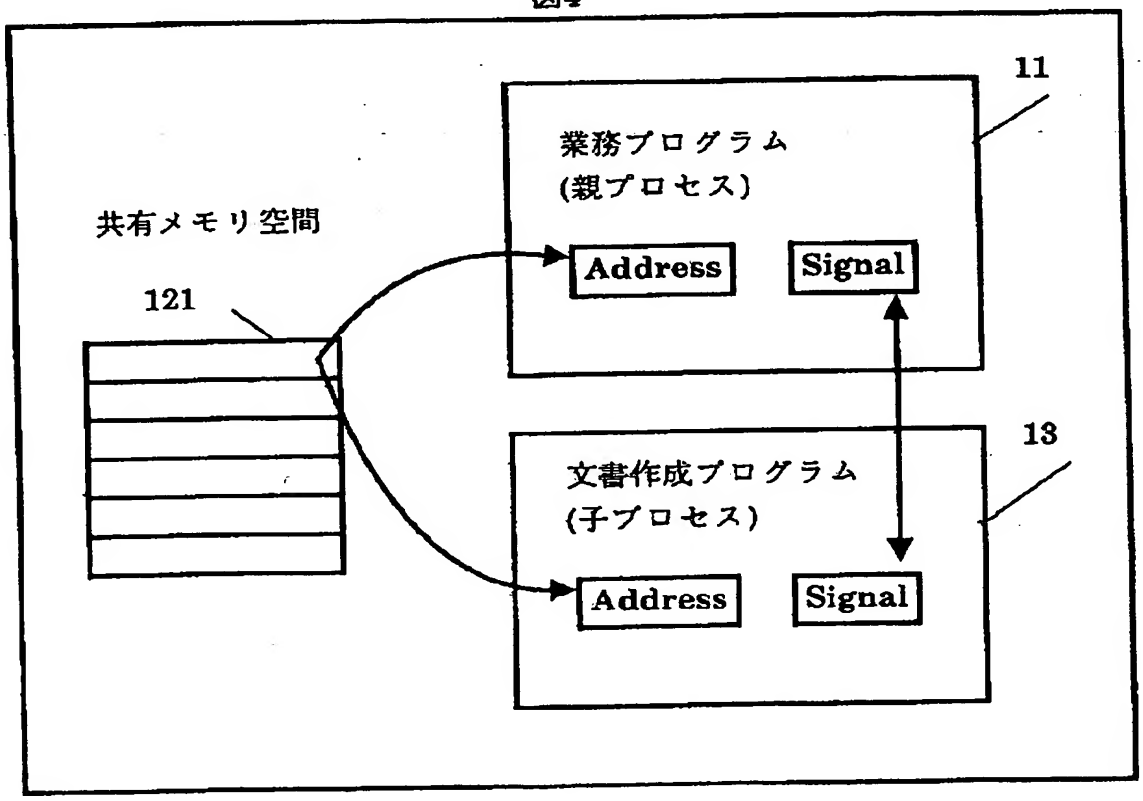
[Drawing 3]

図3

```
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font{0,14,0,0,0,0,0}, String{5.^L個別ライフイベント資金配分についての基本的な考え方}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font{0,12,0,0,0,0,0}, String{5.1.^L収入と支出}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font{0,12,0,0,0,0,0}, String{^L■支　出}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font{0,12,0,0,0,0,0}, String{^L　^L$$STR1様のご希望の老後の生活費は、月額$$NUM1万円です。この金額全
てを賄うためには退職時点で$$NUM2万円の資金が必要となります。
　しかし、$$STR1様の老後におきましては、$$STR2}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font{0,12,0,0,0,0,0}, String{^L■収　入}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font{0,12,0,0,0,0,0}, String{^L$$STR1様の場合、第3章の確認項目に基づき、$$STR3などの一時収入の合計が}}
Text{Font{0,12,0,0,0,2,0}, String{$$NUM3}}
Text{Font{0,12,0,0,0,0,0}, String{(月額$$NUM4万円)があると予測されます。}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font{0,12,0,0,0,0,0}, String{^Lこれらの、収入と支出をグラフにすると以下の通りです。}}
Para{Para[0,1,0,0,0,12,18,0], Tabs{003000c000f001380180}}
Text{Font{0,12,0,0,0,0,0}, String{$$INCOME_GRAPH}}
Brek{Type[0]}
```

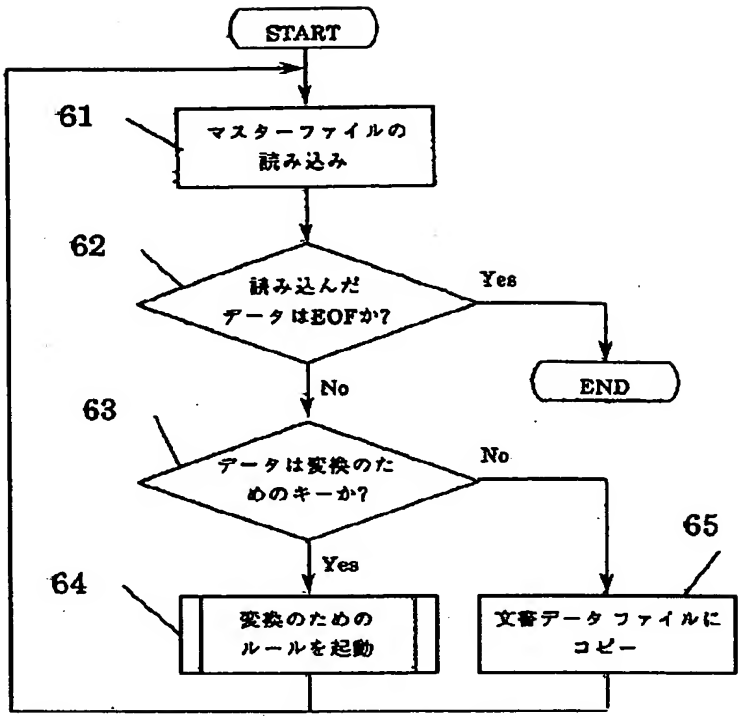
[Drawing 4]

図4



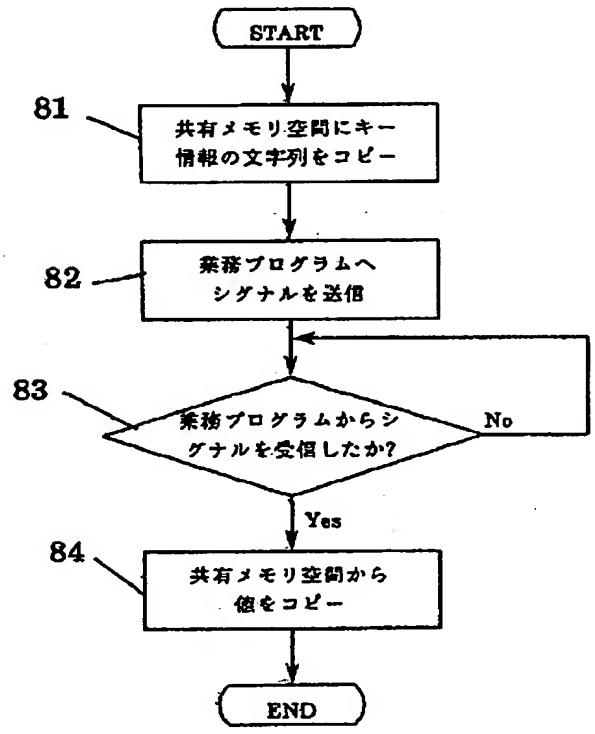
[Drawing 6]

図6



[Drawing 8]

図8



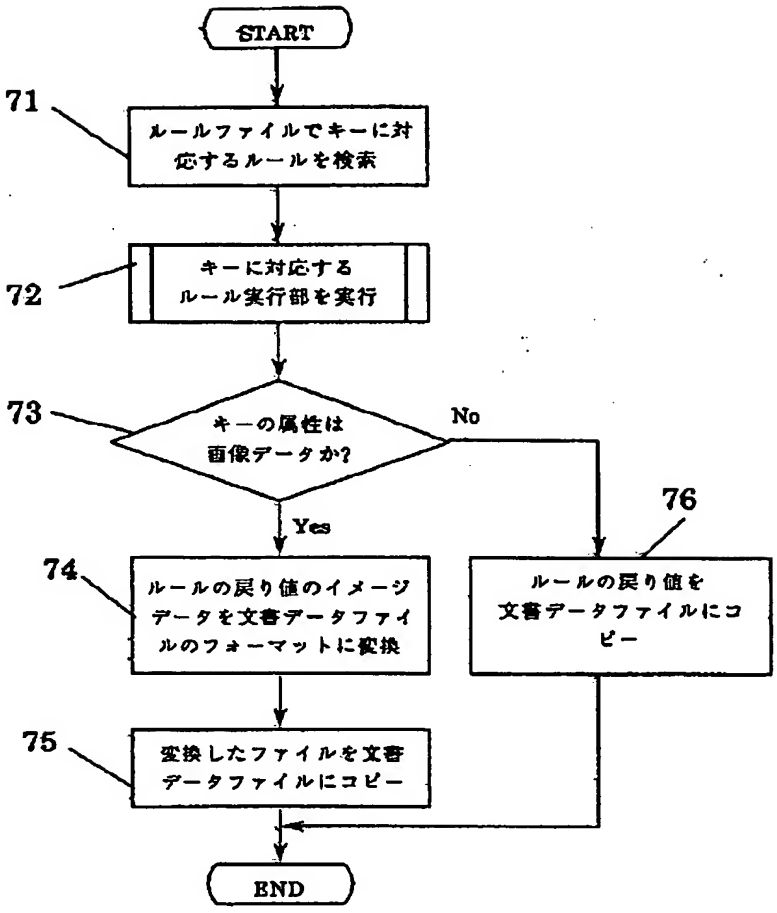
[Drawing 5]

図5

```
STR1::
        GetMessage__Str(USER__NAME, sval);
        return(sval);

STR2::
        GetMessage__Num(SILVER__INCOME, nval);
        GetMessage__Str(SILVER__MAIN__INCOME, sval);
        if (nval == 1)
            return(MakeSentence(sval, "等の収入がありますので、老後の生活費用
の一部を補填することができます。"));
        else
            return(第3章の確認項目で収入のご記入がありませんでしたので、ないものと
して計算してあります。);;

STR3::
        GetMessage__Str(SILVER__MAIN__INCOME, sval);
        GetMessage__List(SILVER__OTHER__INCOME, lval);
        if (lval == 0)
            return(sval);
        else
            return(MakeSentence(sval, lval));

NUM1::
        GetMessage__Num(SILVER__COST__M, nval);
        return(nval);

NUM2::
        GetMessage__Num(SILVER__FUND, nval);
        return(nval);

NUM3::
        GetMessage__Num(SILVER__ALL__INCOME, nval);
        return(nval);

NUM4::
        GetMessage__Num(SILVER__INCOME__M, nval);
        return(nval);

INCOME__GRAPH::
        Convert__bm(INCOME__BM, income__graph.idf);
        return("income__graph.idf");
```

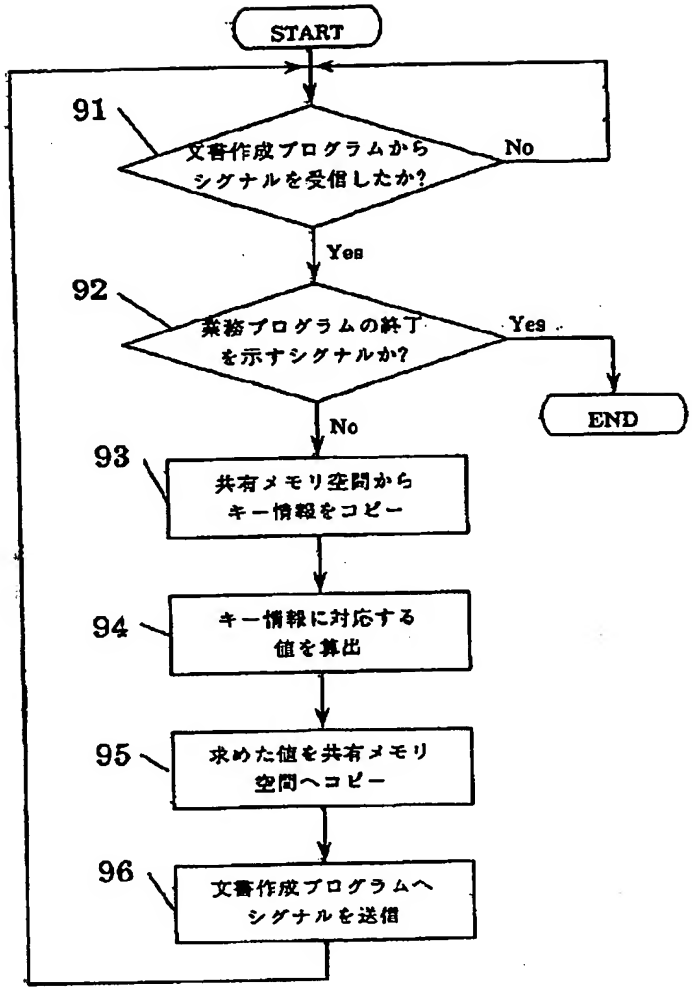
[Drawing 7]

図7


START
71
ルールファイルでキーに対応するルールを検索
72
キーに対応するルール実行部を実行
73
キーの属性は画像データか?
No
Yes
76
74
ルールの戻り値のイメージデータを文書データファイルのフォーマットに変換
ルールの戻り値を文書データファイルにコピー
75
変換したファイルを文書データファイルにコピー
END

[Drawing 9]

図9



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